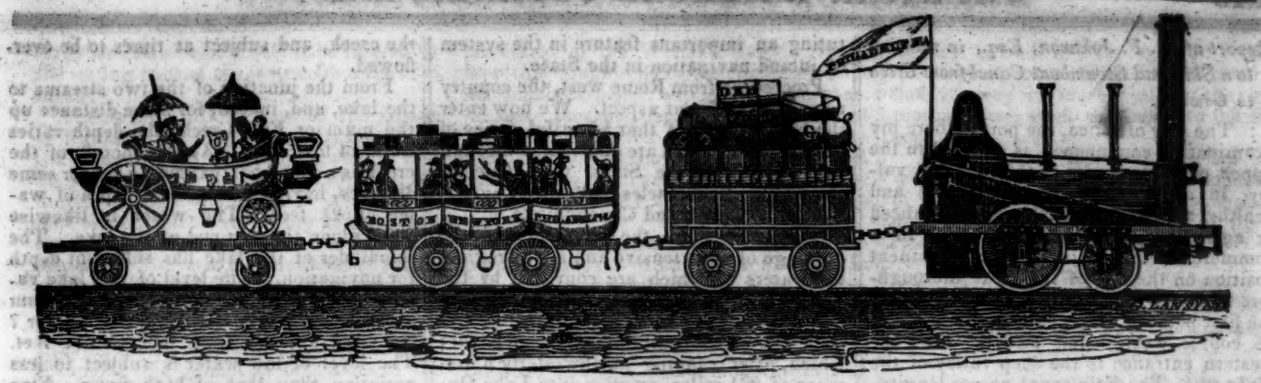

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, MARCH 14, 1835.

MARYLAND, AS CONTRASTED WITH NEW-YORK, ENTERPRISE.—The House of Delegates of Maryland have authorized a loan of two millions of dollars for the purpose of completing the Chesapeake and Ohio Canal to Cumberland. This is truly an evidence of liberality. This canal terminates in *another* territory—yet the State of Maryland, with a spirit of true and judicious munificence, or liberality to its Western citizens, who are to be benefitted by the work, lends her credit to insure its completion—as she also has for the completion of the Susquehanna Railroad, by the loan of a million, for the benefit of the City of Baltimore.

Will the *great State* of New-York imitate her example?

ONTARIO AND HUDSON SHIP CANAL.—We have commenced in this number the Report of Mr. E. F. JOHNSON, upon that part of the canal between Utica and Oswego. It was our intention to have given it entire, but its length has prevented. We shall, however, give in the next number his very appropriate and correct remarks upon the importance of the work. They exhibit the enlarged views of a liberal mind—and should be read by every man who doubts the importance and necessity of the work.

The annexed extracts from Mr. Johnson's remarks will show the advantages to be derived from a ship canal navigation.

From Lake Erie to the Hudson River, the distance by the Ontario route is 378 miles, and exceeds that by the Erie Canal only 15 miles. Of this distance, 146 miles is along the Niagara River and through Lake Ontario; about 62 miles more of improved navigation along the Oswego and Oneida Rivers and Oneida Lake, leaving only 140 miles from the latter point to the Hudson at Albany.

The increase in lockage by the Ontario route is 240 feet, which being overcome by 30 locks, will occasion a delay of four hours; making the liberal allowance of eight minutes for the passage of a single lock. To compensate for this delay, we have the greater celerity of motion on the Ontario route, which may be rated as follows:

Buffalo to Lewiston,	30 miles,	3 1-3	miles pr. hour,	9	hours.
Lewiston to Oswego,	146 "	9	" "	16	"
Oswego to Albany,	202 "	5 1-2	" "	37	"
Total,	378 miles in			62	hours.

By the Erie Canal the distance is 363 miles, which, at 2½ miles per hour, the average speed for freight boats, gives 145 hours; making a difference in favor of the Ontario route of 83 hours, or reducing the time more than one half.

My estimate of the probable relative cost of transportation, is deduced, in part, from a printed tariff of rates established by companies engaged in that business, for the year 1834, and since the reduction of the tolls.

From this tariff, the charge per mile, per 1,000 lbs., for heavy goods, conveyed as described, is as follows:

	Mills.	
New York to Albany,	7.3	Steam on the Hudson River.
Albany to Buffalo,	22.6	By the Erie Canal.
Buffalo to Detroit,	11.3 By vessels. / 18.7 " steamboats.	to 15th Oct.
Buffalo to Chicago,	6.2	By schooners to 20th Sept.
Oswego to Niagara,	14.5	To 15th October.
Oswego to Toronto,	13.2	

The preceding exhibits a great difference in favor of navigation by wind and steam upon the larger waters, when compared with a canal.

On the Hudson River the cost is only one third of that upon the canal for the same distance.

On Lake Erie, from Buffalo to Detroit, it is one half by sail vessels and three fourths by steamboats. On Lake Ontario it is two thirds, and from Buffalo to Chicago but little more than one fourth.

The reason for a higher charge upon Lake Ontario than Lake Erie, is undoubtedly in a great measure owing to the less amount of business upon the former, a difference which will not exist when Lake Ontario shall become a more general medium of transportation.

From Lake Erie to the Hudson River, on the Ontario route, one third of the whole distance is lake navigation. It will not, I apprehend, be unreasonable to infer from the facts presented above, that the cost of transportation will, in consequence, be materially reduced.

☞ At the close of of the Report given in this number of the Journal, is a transposition. The table of *aggregate* sections should come before the general remarks, and the few paragraphs in the head of general remarks belong to that part of the Report not published.

We have received the following letter in relation to the reported new channel, or entrance to the Suwanee River, from an officer of the Army:

TALLAHASSEE, Florida, Feb. 26, 1835.

SIR,—I perceive that you have inserted in the Railroad Journal an article first published in the Floridian of this place, giving an account of a pretended new discovery of a channel into the Suwanee River—which discovery, if true, would be of considerable importance, not only to the country on the river, but to the Atlantic seaport cities, as well as those of the Gulf of Mexico, as a route of communication, by means of the Suwanee and St. John's Rivers, between them.

The report of the discovery originated with Mr. Watson, a gentleman of high respectability and intelligence, who resided near the spot—who has assured me, on inquiry of him, that an entire misapprehension of his meaning has been taken by the author of the article in question. His only discovery was the harbor at the mouth of the river, which is the same surveyed by Capt. Swift, of the U. S. Topographical Engineers, some years since, and where Col. Gadsden found the vessel at anchor belonging to Arbuthnot & Ambrister, when St. Marks was taken by Gen. Jackson, as he has described to me in person.

I give you this information, that you may save many from being misled, who may feel an interest in this quarter.

Report of E. F. Johnson, Esq., in relation to a Ship and Steamboat Canal from Utica to Oswego.

The city of Utica, the point where my examination commenced, is situated in the upper, or western part of the Mohawk valley, in a region of country fertile and healthy, and already considerably advanced in agriculture and manufactures. In a commercial view, it occupies a prominent position on the line of the great thoroughfore from the Hudson to the Lakes, and is the first point of divergence of the trade in its course west, being situated near the western entrance to the deep valley of the Mohawk. The Erie canal passes longitudinally through it, and it is the point of termination of two important works of internal improvement, both of which are in a course of construction, viz.: the Chenango Canal and the Utica and Schenectady Railroad; the former connecting the Erie Canal with the valley of the Susquehannah, and the latter uniting with the Mohawk and Hudson Railway, and forming therewith a railway communication to the Hudson River at Albany. The Mohawk River, which bounds the city on the north, is 30 feet below the Erie Canal, and 390 above tide water. It has its source in the elevated country at the north and west, its head waters interlocking with those of Fish Creek and Black River. Thence it runs southerly to the village of Rome, from which place it pursues an easterly course to its junction with the Hudson River, nine miles above Albany.

From Rome to Utica, 15 miles, the descent by the river is 30 feet, the most of which occurs in the first 8 miles. The intervening valley is composed of an alluvial bottom, varying from one half to one mile in breadth, and bordered on each side by the slopes of the elevated ridges which form the confines of the valley. The channel of the river between the points mentioned, is exceedingly serpentine. In breadth it varies from one hundred to two hundred feet, and in depth from 2 to 10 or 12 feet. The banks and land, on either side, are low; from 7 to 8 feet only above low water, and during the spring floods are completely submerged in many places to the depth of four or five feet. The Mohawk, in the distance mentioned, receives several important tributaries, viz.: the Six and Nine Mile creeks on the north, and the Little Oneida, Oriskany, and Saquoit creeks on the south; the two latter of which afford numerous and valuable hydraulic privileges, many of which are improved.

The village of Rome occupies the height of land between Lake Ontario on the west, and the Atlantic on the east, and is the lowest summit, with the exception of the Champlain, between the great St. Lawrence basin, and the Atlantic Ocean. The ground on which the village stands is about 25 or 30 feet above the Mohawk River. Towards the south it is lower, and swampy. On the margin of the lower ground skirting the village, is the site of the "Old Rome Canal," constructed some 30 years since, by the Western Inland Lock Navigation Company, and forming at the time, in connexion with the Mohawk River, the waters of Wood Creek, Lake Oneida and the Oswego River, the only navigable communication between the Atlantic and the west. The village of Rome is likewise the point of termination of the proposed Black River Canal, a project which has been some time in contemplation, and which has been viewed as constituting an important feature in the system of inland navigation in the State.

Proceeding from Rome west, the country assumes a different aspect. We now enter the broad valley of that beautiful series of inland lakes, which are distributed through the interior of the State, viz.: Oneida, Onondaga, Skaneateles, Owasco, Cayuga, Seneca, Crooked, and Canandaigua.

These lakes are the recipients of the drainage of an extensive and fertile region, the waters of which are conveyed by the Seneca and Oneida Rivers to a point of junction forty-six miles west of Rome, and from thence constituting the Oswego River; which, after running northwesterly a distance of 23½ miles, empties into Lake Ontario at the village of Oswego.

The northern portion of this valley, from Rome to the Oswego River, is somewhat elevated. The ridge which bounds it, is nearly parallel with Lake Ontario, declining in elevation towards the Oswego River, but possessing, it is believed, no point of depression less elevated than the Rome summit, if we except, perhaps, a short distance in the immediate vicinity of the Oswego River.

At the foot of this northern slope is the Oneida Lake, 21 miles in length, with a medium breadth of five miles. This lake lies in a direction nearly east and west. It receives, as tributaries, Fish Creek, with several smaller streams on the north and east, and Oneida and Chitteningo Creeks on the south. The valley in the latter direction, although much diversified in its surface, is broader and more open, and more advanced in cultivation than the country north.

It is along this slope, parallel with, and elevated about 60 feet above the lake, that the Erie Canal is located. From a point 9¾ miles east of Utica, the canal is one continued level westward to Syracuse, a distance of 69½ miles. At Utica it passes through the centre of the city, 30 feet above the Mohawk River. At Rome, it occupies the low ground already described, half a mile south of the village. Between Utica and Rome it passes through the flourishing villages of Yorkville, Whitesborough, and Oriskany, crossing the Saquoit and Oriskany Creeks by two aqueducts. At Rome, it receives, by two feeders, the waters of the Mohawk River, together with those of Little Oneida and Wood Creeks. From Rome, west, to the termination of the level, it receives a supply from nearly all the streams which flow from the south, with the exception of the Oneida Creek, arrangements for the admission of which have already been made by a provision in the charter of the Oneida Lake Canal Company, who are now engaged in opening a communication between the Erie Canal and the Oneida Lake, at its eastern extremity.

The direct course from Rome to the Oneida Lake, leads along Wood Creek. The distance is 14 miles. This creek unites with Fish Creek, a large and powerful stream, a short distance before it enters the lake. The channel of Wood Creek is very crooked. The navigation of the upper part of it was formerly improved for small boats, by means of dams and locks. For the remaining distance, the curvature was so great as to render it, notwithstanding the great descent, a comparatively slug gish stream.

For six miles adjoining the lake, and extending to some distance on either side, the ground is low and swampy, not exceeding five or six feet above the waters of the creek, and subject at times to be overflowed.

From the junction of the two streams to the lake, and, indeed, for some distance up the main or Fish Creek, the depth varies from 14 to 25 feet. At the mouth of the creek is a broad bar, extending out for some distance, having a minimum depth of water of 2½ feet. The water is likewise shoal along the east end of the lake. The remainder of the lake has sufficient depth for navigation. The level of this lake varies at different seasons; the maximum difference observed in the spring is 6 or 7 feet; the average from four to five feet. The level of low water is subject to less variation than that of high water. Five years since, the State directed the surface to be reduced, by the removal of obstructions in the outlet, for the purpose of reclaiming the low lands contiguous to its eastern and western margins.

From the south side of the lake to the Erie Canal, the distance is from 5 to 6 miles. About midway of this distance are the Cawassalon and Caneseraga branches of the Chitteningo Creek, running parallel with the lake for some distance. These streams are bordered by an extensive marsh, elevated, it is stated, from 17 to 24 feet above the lake, and separated from it by a tract of hard land.

The outlet of the lake is by a stream of large size, having an average breadth of from 300 to 350 feet, and, with the exception of ten or twelve places, exceeding 10 feet in depth, in its lowest state.

This outlet is termed the Oneida River. Its length is 19$\frac{33}{40}$ miles, and its descent 9¾ feet, to where it unites with the Seneca and Oswego Rivers. The land on either side is, with few exceptions, elevated above the reach of flood waters, and has an undulating surface. The stream pursues a very circuitous course, the direct distance between its two extremes being only 8 miles. From Three River Point, the place of junction with the Seneca and Oswego Rivers, to Lake Ontario at Oswego, the distance is 23¼ miles, and descent 112 feet.

The Oswego River is very broad, not less, on an average, than 600 feet, and discharges a large quantity of water; being the drainage of nearly 4,000 square miles of country. It is likewise very equable in its flow. The extremes of flood and drought not causing a greater difference than from 4 to 5 feet, and by the ordinary rains is seldom swollen to a greater height than from 12 to 20 inches. This is owing to the numerous lakes from whence it draws its waters, and which, in connexion with its magnitude, renders it eminently fit for navigation by the aid of dams and locks.

An improvement of this kind has already been effected, and adapted to boats of the size of those navigating the Erie Canal, and uniting with that work at Syracuse near the west end of the Rome level. The number of dams is eight, which are passed by means of short canals and locks constructed on the eastern side of the river; the number of the latter being 14, and overcoming 109 feet of descent, the balance to 112 being made up in the inclination of the surface of the river. The most of this descent occurs in the 12 miles nearest the lake.

From Three River Point to Oswego Falls, 12 miles, the place where the greatest descent begins, the banks are not high, varying from 12 to 10 feet. There is but little low land in the immediate vicinity of the river; on one of its tributaries, however, from the west, Ox Creek, the land is low

for some extent, and is said to be injured by the setting back of the waters from the dam below.

At Oswego Falls is situated the village of Fulton, possessing great advantages in the amount of its hydraulic power. From thence to the lake the banks of the river are uniformly high and steep, in some places rock bound, unbroken by any ravines, and presenting an unvarying sameness of appearance. The river for this distance passes over a rocky, and in some places gravelly bed of red and gray sandstone.

At its confluence with Lake Ontario is situated the flourishing village of Oswego, occupying the ground on both sides of the river, possessing many commercial and manufacturing facilities, the latter of which are improved to a considerable extent.

The harbor, which covers an area of about 40 acres, is protected by a pier erected by the General Government. The place is favorably situated for concentrating the trade of the lake, and constitutes (it is believed) the best termination for the proposed canal.

Size and Character of the proposed Canal.

In the absence of definite instructions on this subject, I have assumed for the dimensions of the proposed canal, a depth of 8 feet; breadth at surface, 90 feet. Inside slope of banks, 2 horizontal to 1 perpendicular. The banks to be well faced with stone; the canal to be provided with a towing path; the locks to be 30 by 130 feet in the clear in the chamber, with a lift of about 8 feet; and, together with the culverts, to be built of stone, in the most substantial manner. The aqueducts, waste-weirs, and bridges to be constructed with substantial stone abutments; the latter to be formed with draws, for the convenience of passing vessels.

A depth of 8 feet has been adopted, as being suited to the draught of such vessels as can navigate the great lakes with safety; that being the depth of water in the Welland Canal, and likewise the depth to which the Delaware and Raritan Canal has ultimately been increased; both of which canals are designed for vessels navigating the larger waters. The locks are assumed double the width of those now used in the New-York canals, to enable boats from those canals to pass them by pairs. This width is but little, if any, greater than would be required for vessels of suitable proportions for lake service, drawing 7 feet water; and it was therefore deemed the most proper dimension to adopt.

The tonnage of vessels adapted to a canal of the above dimensions, may be rated nearly as follows:

	Register.
Schooners,	160 tons.
Freight vessels to be towed by steamers,	190 "
Steamboats,	140 "

Provision for the protection of the banks has been made in the estimate, to guard them from the effects of abrasion by the wave or swell caused by boats moving rapidly, whether propelled by steam or otherwise, and a towing path constructed to allow the use of animal power. Bridges for the accommodation of farms are not contemplated, from a conviction that they will be incompatible with the character of the navigation.

The dimensions assumed for the canal are, it is believed, sufficiently moderate. I am strongly impressed with the idea, that a larger channel would be preferable, corresponding in size to the improvements on the St. Lawrence, and to the proposed enlargement of the Welland Canal. Whether this magnitude can be obtained at a reasonable expense, will depend, perhaps, in some measure, upon the character of that portion of the route between Utica and Albany, not included in the present examination. A canal of the largest size practicable will, I am convinced, be the best.

The present avenue of communication from the Hudson to Lake Erie has been in full and successful operation only 9 years, and is now hardly sufficient for the necessities of trade. It would be evident impolicy in the proposed undertaking, to limit the view so much as to render a revision and enlargement necessary at the expiration of another ten or fifteen years.

[We omit, at this time, the particular description of the route, giving merely the points and distances.]

Total Distance from Utica to Oswego.

	Mls. chs.
Utica to Fort Bull (Erie Canal enlarged),	16.42
Fort Bull to Fish Creek (new canal),	10.24
Channel of Fish Creek to Oneida Lake,	2.00
Oneida Lake (assumed),	21.00
Oneida River to Caughanoy,	4.54
Canal at Caughanoy (new),	.16
Oneida River to Three River Point,	14.33
Oswego River to Phœnixville,	2.23
Canal enlarged to Brandy Creek,	.52
Oswego River to Horse Shoe Dam,	3.69
Canal enlarged to Ox Creek,	1.01
Oswego River to Oswego Falls, upper landing,	3.63
Canal enlarged at upper landing,	.34
Oswego River to Fulton,	.37
Canal enlarged to Mooney's Bay,	1.60
Oswego River to Braddock's Dam,	1.57
Canal enlarged to Devil's Horn,	2.15
Oswego River to McKinster's Dam,	.70
Canal enlarged to Lock No. 19,	1.07
Oswego River to High Dam,	1.16
Canal enlarged to Lock No. 21,	.26
Oswego River to Oswego Dam,	.54
Canal enlarged to Oswego Harbor,	1.16
Total,	92.49

From the above is deduced the following:

	Mls. chs.	
Total extent of enlarged canal,	25.13	
" of new "	10.40	
		35.53
" of Fish Creek "	2.00	
" of Oneida Lake "	21.00	
" of Oneida River "	19.07	
" of Oswego River "	14.69	
		56.76
Total,		92.49

Making a total of 35 miles and 53 chains of canal navigation, and 56 miles and 76 chains of lake and river navigation.

General Remarks.

I have thus far confined myself to an examination of the practicability and probable expense of that portion of the proposed steamboat canal, lying between Utica and Oswego.

I have thought it not improper, in continuation of the subject, to advert to some of the more prominent of the relations which a work of that magnitude, connecting the great lakes with the tide waters of the Atlantic, will bear to the internal commerce of the country.

That there is no other route presenting the same or equal facilities for an enlarged navigation, by which the trade of the west may be conveyed in the most direct manner to the sea-board, will, I believe, be readily conceded by every one acquainted with the physical geography of the country. The only important question, therefore, which remains to be decided, is, whether the time has arrived for forming such a communication. The evidence of this must be deduced principally from an examination of the existing and prospective increase in trade of that region of country, the surplus produce of which will naturally find its way to market along the great thoroughfares from the Lakes to the Hudson.

The following table exhibits the past, with the prospective increase in population of the States and Territories mentioned, deduced from the census taken at the periods stated from 1800 to 1830.

Aggregate of Sections.

	Section.	Distance. Mls. chs.	Cost.
Erie Canal enlarged,	1	2.14	$ 41,812
	2	3.55	57,670
	3	2.10	33,911
	4	4.32	44,347
	5	2 10	39,803
	6	2.01	18,930
Total distance,		16.42	$236,473
Erie Canal to Fish Creek,	7	1.76	51,386
	8	2.47	65,460
	9	3.75	77,944
	10	1.66	52,166
Total distance,		10.24	$246,956
Fish Creek & Oneida Lake,	11	23.00	25,115
Oneida River,	12	.41	20,635
	13	4.29	34,636
	14	6 14	31,020
	15	5.00	36,410
	16	3.19	20,820
Total distance,		19.23	143,521
Oswego River,	17	2.23	15,300
	18	.52	20,509
	19	3.69	7,071
	20	1.01	25,790
	21	3.63	6,820
	22	.34	36,617
	23	.37	1,059
	24	1.60	66,701
	25	1.57	2,479
	26	2.15	45,374
	27	.70	2,392
	28	1.07	39,134
	29	1.16	2,586
	30	.26	30,880
	31	.54	1,296
	32	1.16	73,008
Total distance,		23.40	$377,016
Whole distance,		92.49	
			$1,029,081
Superintendence & contingencies, 10 pr. ct.			102,908
Whole cost of the canal,			$1,131,989

To the preceding amount of $1,131,989, must be added whatever expense it may be found necessary to incur for obtaining the requisite supply of water, as likewise the damage, should it be necessary to allow any, for injury to the business prospects of the Oneida Lake Canal.

[From the Journal of the Franklin Institute.]

Specification of a Patent for an Improvement in the Mode of Chilling Cast Iron Wheels for Railroad Cars. Granted to PHINEAS DAVIS, Civil Engineer, city of Baltimore, July 29, 1834.

Whereas, it has been found that, in the casting of what are called chilled wheels, for railroad cars, that the part of the wheel which is most liable to wear, namely, the rise, cone, or curve, between the tread of the wheel and the flanch, is usually less hard than the other parts, for the obvious reason that the metal is there less rapidly cooled by the chill.

Those acquainted with the business of casting iron, are aware that the operation of chilling consists in placing within the mould, so as to make a part thereof, a piece, or pieces of iron, which, when the metal is poured in, rapidly cools that por-

tion with which it is in contact, and renders it hard. In the casting of wheels for railroad cars, the chill consists of an iron hoop, of considerable thickness, and with which the whole face of the wheel, including its flanch and tread, is in contact; but from its form, as I have already indicated, there is one part of it, uniting the tread with the flanch, which is less rapidly cooled than the others. To remove this difficulty, I employ what may be denominated an internal chill; this consists of an iron hoop, or ring, which I usually form of round rods, half an inch in diameter, giving to the hoop, or ring, such a diameter as shall cause it, when laid in the flask, and the casting made, to be surrounded by, and completely imbedded within, the cast metal, and to stand about half an inch within the body of that part of the wheel which forms the curve, or cone, before spoken of, and opposite the centre thereof. But as, in the usual thickness of the rims of such wheels, the said ring would be covered on the inside by only a thin shell of metal, I form such a bead, projection, or thickening, opposite thereto, on the inside of the pattern of the wheel, as will cause the metal to cover it, about three-eighths of an inch.

Iron-founders are well acquainted with the means of supporting such articles as the before described ring, within the flask, so that they may be embraced within the cast metal. The method which I have adopted of effecting this in my wheels, is the following. I take four strips of iron, which may be one-tenth of an inch thick, one-fourth of an inch broad, and four or five inches long, and one end of each of these I bend round the ring, so as to clasp it tightly, the remainder of the strap forming a shank, or bearing, which rests upon the sand in the lower flask. These clasps stand at equal distances apart, and, when in the mould, point toward the centre of the wheel. The pattern must be so made, that the parting of the sand in the flask will be opposite to the centre of the ring. Facing sand, of the usual description, should be used in making the mould. The ring, before being placed in the mould, should have its surface made bright, by filing, or otherwise. It must also be heated, say to the temperature of boiling water, to dissipate any moisture, or other evaporable matter, which might otherwise cause it to blow. The casting should be performed immediately after placing the ring in the flask.

Although I have described the mode of procedure in casting, and in other parts of the process for forming wheels within which are imbedded a ring of wrought iron, I do not claim these as making any part of my invention; but I do claim the using of a hoop, or ring, of wrought iron, to be laid and cast within the body of a railroad wheel, in such manner as to operate as an internal chill, to cool more rapidly, and consequently to harden, the part which I have described under the name of the curve, or cone thereof; I claim no more. PHINEAS DAVIS.

[From the same.]

Specification of a Patent for Promoting the Combustion of Anthracite in Locomotive and other Steam Engines. Granted to PHINEAS DAVIS, Civil Engineer, city of Baltimore, July 29, 1834.

The means by which I promote the combustion of anthracite, or other fuel, is by the employment of fan wheels, or vanes, revolving within drums, in a manner well known to machinists; and my improvement consists in the arrangement of the apparatus by which I employ the waste, or escape steam, to give motion to such fans, or vanes. For a locomotive engine, I usually employ two fan wheels, and I have found them, and their appendages, to answer well in practice, when made of the dimensions which I am about to indicate, although, in this particular, there may be considerable variation, without injury to the effect. The wheels may be from eighteen to twenty inches in diameter, and from ten to twelve inches wide; they may be placed upon the same axis, and at the distance of about eighteen inches from each other in the clear; in many instances, two vanes to each wheel will be sufficient, but a greater number may be used; the drums within which the wheels revolve do not differ from those ordinarily employed in similar blowing machines. The wind is conducted from these drums through tubes seven or eight inches square, which lead from them in the direction of a tangent to the circle described by the wheels, into a tight ash-pit under the grate of the furnace; and the air is thereby forced through the fuel with such velocity as to cause the fire to burn with great energy, so as to produce an abundant supply of steam from anthracite, notwithstanding the tendency of that fuel to pack, and thereby to impede the ordinary draft, when employed for locomotive engines.

In order to give motion to the fan wheels, I place a steam wheel upon the same shaft with them, generally at the centre thereof, so as to be equidistant from them. This steam wheel is constructed in the same manner, nearly, as the wind wheels, differing from them principally in its dimensions, and its being acted upon and impelled by an elastic fluid, (steam,) whilst they act upon and impel an elastic fluid, (air.) The steam wheel has usually four wings, or vanes, from three to five inches in width; and it may be from twenty to twenty-four inches in diameter. This wheel is enclosed within a drum, of such dimensions as just to allow the vanes to revolve freely within it. A tube connected with the exhaust pipe, from each end of the cylinder, enters the drums tangentically, and the waste steam is thus injected forcibly against the extreme ends of the vanes, impelling them, and consequently the wind wheels, with great velocity. The steam which thus enters escapes at an opening, or openings, in the centre of the drum, made similar to those at which the air enters from the action of, and to supply the, fan wheels.

As it is necessary to command the blast, so as to regulate the intensity of the fire, which would often be too great were the whole of the waste steam discharged upon the steam wheel, I attach a branch pipe to that which conducts the steam from the cylinder, or cylinders, to the steam wheel, and employ a valve, or valves, so arranged as to enable me to direct the whole, or any desired portion, of the steam, through such branch pipe, and thus attain the desired object in the most perfect manner.

The continued fresh supply of steam, and the diminished centrifugal force of that which has acted upon the vanes, continues, however, to operate until the moment of its escape at the opening surrounding the centre, provided the parts are properly proportioned to each other, for although its energy is diminished, so also is the actual velocity of the vane, as the centre is approached.

The opening in the steam wheel, for the escape of steam, I usually make on one side only, and cover this with a cap, or drum, and from this cap, or drum, a tube extends upwards to carry off the steam in such a way that no inconvenience may be experienced by its discharge.

Although I intend always to use the waste steam from the cylinder, or cylinders, it is manifest that steam may be supplied from the boiler, to act upon the steam wheel; but this procedure would not be economical, and would yet be a manifest invasion of my rights.

I am aware that wind wheels, such as I have described, have been used to supply a blast to the furnaces of locomotive engines; I am also aware that wheels have been propelled by the action of steam upon wings, or vanes, surrounding them; I do not, therefore, claim either of these, singly and separately, as my invention; but what I do claim is the combination and arrangement of the parts such as I have described, by which the waste, or escape steam, is made to act upon vanes revolving within a drum, for the purpose of giving motion to wind wheels, to feed the furnaces of steam engines.

And I do hereby declare, that I have herein explained and set forth what I believe to be the best method of applying the waste steam to accomplish the proposed object, but that I do not intend thereby to confine myself to this precise mode of construction and arrangement, but to vary the same as I may find convenient, whilst I operate upon the same principle, and attain a like end by analogous means.

PHINEAS DAVIS.

We insert the following communication with pleasure, and should be pleased to hear often from its author.—[ED. R. R. J.]

Remarks relative to the Steam Engine.

To the Editor of the Railroad Journal:

SIR,—If you consider the following remarks relative to the steam engine worthy of attention, oblige me by giving them a place in your Journal.

In all machines it is a desideratum, that just such an amount of power should

be applied as is necessary to produce the desired effect. When the effect to be produced requires different degrees of power at different times, the machine should be so arranged as to be able to exert more power at one time than at another; and it should at no time exert a power greater than is necessary to produce the effect required at that time. The want of thus apportioning the power and effect is obvious in many cases where steam is used, particularly so when it is used as the motive power on rail and other roads; and a great waste of power is the consequence.

In cases where locomotive steam engines are used on railroads, which are undulating, or various in their grades, it is common to give them such loads as they are capable of moving up the steepest ascents which they are expected to encounter between their places of starting and destination. If they are expected to pass ascents of 24 feet to the mile, they only take half the load which they are capable of moving on a level, and if they have to pass descents of that inclination, as well as ascents, they have nothing to do while they are thus descending. When stationary steam engines are used to draw boats or cars up inclined planes, they are generally idle during a considerable portion of their time, yet the steam must be kept at its full pressure, so as to be ready for any work which may offer.

In order to prevent this waste of steam when used as the *primary power*, it is proposed to employ the engine during its moments of ease and leisure, in condensing atmospheric air, which condensed air will be used as a *secondary* or *reserved power*, and be applied to assisting the engine when it has the most to do.

The atmospheric air to be condensed in air chambers of *globular*, *cylindrical*, *oval*, *rectangular*, or other shape, as may be found best suited to the case, and to be made of copper, iron, or other suitable material.

The air to be passed from the air chamber, through *hot tubes*, to one or more working pistons, similar to the pistons of a high pressure steam engine; the tubes to be kept at as high a temperature as is found expedient, so that the air may enter the cylinder of the working piston rarified as much as possible, whilst the air in the chambers will be kept at a low temperature by surrounding them with a non-conductor of heat. Although the use of the hot tubes will greatly tend to economise the use of air, it may not be found expedient to use them in all cases.

In cases where *globular air chambers* are used, they may be provided with *air measures*, so that, although the air in the chamber may have a pressure greatly exceeding that necessary for producing the desired effect on the working piston, yet such a quantity only shall be let out at one time as is necessary to produce that effect. This may be done by having something like a safety-valve to the measure, so adjusted as to shut off the supply of air from the chamber at the moment it raises.

In cases where the air chambers have a shape other than globular, they may be provided with a *piston* so arranged as to decrease the size of the chamber as the air is used; that is, for each cubic foot of air used by the working piston, the air chamber shall be reduced in size one cubic foot, by which means the full pressure of air will be kept up, until it is all exhausted. These pistons may have a vertical or a horizontal motion, and may be forced into the chamber by *levers and weights*, *cords passing round drums*, or *cog wheels working in racks*.

After the air has produced the desired effect on the working piston, it is proposed to pass it into the fire of the engine, so as to hasten the combustion of its fuel.

When locomotive engines have not weight enough to produce the necessary adhesion, it is proposed to connect the wheels of the engine with those of its tender, and, if necessary, with those of several of the loaded cars following next after it. The forward and after wheels of the engine and cars may be connected by *cranks* and *connection rods*; and the wheels of one car with those of another, by *chains*, with suitable *links*, passing round *cog wheels* fixed on the middle of the axles. The chains may be made to work tight on the cog wheels by *pressure wheels*, to be so arranged as to cause the two sides of the chain, that is, the sides of the chain above and below the cog-wheel, to approach each other, and to operate only when necessary.

An engine having the two kinds of power thus combined, it will be proper to entitle the *Pneumatic Steam Engine*, and the advantages which must result from the combination are obvious.

The capacity of the ordinary locomotive steam engine used on railroads, must be greatly increased by it; in some cases it may be doubled. Even when it is used on level roads, it is often difficult to keep up the pressure of steam. By having condensed air on hand, the deficiency of power on account of the low pressure of steam will not only be supplied, but the combustion of the fuel hastened, and consequently steam generated more rapidly, at the very time when it is most wanted.

By combining the secondary and primary power, in steam engines at the head of inclined planes, the steam engine need only have a power equal to the whole amount of work to be done, instead of a power equal to the elevation of the heaviest load, which may be offered at any one time.

The great difficulty in the way of using steam carriages on common roads,—viz., too much weight for their power,—will be measurably removed by the combination.

The combination may be used for the purposes of regulation and economy, in all cases where the steam engine is called on to exert a greater force at one time than at another, and where the intervals of time, during which the greater force has to be exerted, are too long for the advantageous use of the *fly-wheel*; and it may be used with advantage as a regulator of hydraulic as well as steam power.

In submitting the above remarks to the public, I am fully aware of the danger which surrounds me, in common with other inventors: that of being blinded by my partiality to the products of my own mind. Perhaps I have already fallen into the snare; certain it is, that if there are any insurmountable difficulties in the way of making the combination, I cannot see them; but I wish to get at the truth, and therefore invite criticism.

Respectfully,

J. D. Steele, Jr.

Ellicott's Mills, Md., Feb. 15, 1835.

We have been favored with the following statement, taken from the Journal du Commerce of 29th January last, relative to the Railroads in France. We give it as another evidence of the increased favor with which Railroads are viewed.

Memorandum of the Chemins de Fer (Railroads) now in France.

IN OPERATION.

	DISTANCE. Metres.	Miles.	Yds.
1. From St. Etienne to the Loire	21,285 =	13	1194
2. From St. Etienne to Lyon by St. Chamond and Givors..	60,000 =	37	1495
3. From Andrezieux to Roanne..	68,000 =	42	1341
IN CONSTRUCTION.			
4. From Alais to Beaucaire....	70,000 =	43	2624
5. From Epiney to the Canal of Burgondy.....	28,000 =	17	2105
IN ENGINEERING.	Kitres.	Miles.	Yds.
6. From Paris to Orleans.....	45 =	28	
7. From Paris to Pontoise.....	28 =	17	701
BOOKS OPEN.			
8. From Paris to Havre and Calais.....	320 =	198	1484
9. From Lyon to Montauban...	52 =	32	549

[From the New-York American.]

Important to Baltimore *and* to New York.—The House of Delegates of Maryland have passed a bill authorising a loan of *two millions* of dollars, to the Chesapeake and Ohio Canal Company, which will suffice to complete that canal to *Cumberland*; and a loan of *one million* of [illegible], to the *Baltimore and Susquehannah Railroad*, which will complete that road to *York*, in *Pennsylvania*. The Senate, it was confidently believed, would concur.

The Mayor of Baltimore had in consequence, and in conformity with an application from many most respectable citizens, convened a town meeting for this day, to express their gratification at this event, and to take immediate means to make it available.

Will not these efforts, and those scarcely less strenuous making in Pennsylvania, arouse our State—and this city and the south-western counties in particular—to the necessity, the pressing, urgent necessity—if they mean to maintain their fair proportion of the late Fall, and early Spring, trade, with the great West—of at once entering upon the construction of the *New York and Erie Railroad*? There is no other path but that, through which New York can secure to herself the benefits which natural advantages, and the present course of trade, put within her reach.

Let her not from mistaken views of economy—or from doubts unworthy of, and unauthorised by, her own experience—lose the golden opportunity.

[From the "Mechanics' Magazine and Register of Inventions and Improvements."]

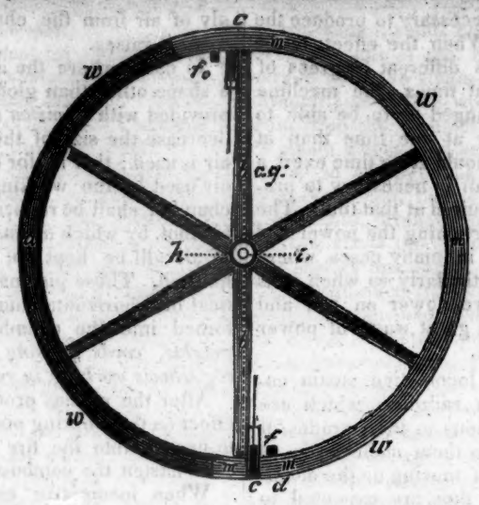
We are indebted to the politeness of Dr. Bartlett, editor of the Albion, for the following drawing and description of a Rotary, or "*Gravitating* Rotary Engine." It is singular in its construction, although not new to us in the application of the steam through the main shaft and arms. The hollow rim and "gravitating" part of the machine are to us entirely new.

Elliott's Gravitating Rotatory Engine.

A new and highly important discovery has recently been made in the application of steam to a very simple machine, by combining those two powerful agents, *steam* and *gravity*, together, and called a *Gravitating Rotatory Steam Engine*, for generating a steady rotatory motion by the pressure of steam exerted between a gravitating weight and a *closed and alternating* valve,* and capable of communicating a direct rotatory motion, as a *first mover* to all kinds of machinery, *by means of a single wheel on a shaft*, requiring neither crank or piston, or but very few of the incumbrances of the common steam engines now in use.

The above is the invention of an Englishman, Mr. James Elliott, a native of Rothbury, Northumberland, Eng., a practical mechanic, who has been employed in the construction of a great variety of mills, and other machinery, in the Province of New-Brunswick, and has occupied the most of his leisure time for the last eleven years in its completion.† We have procured a drawing of this gravitating rotatory steam engine, and from the following brief description, with which we have been furnished, we presume that any scientific person may form a pretty correct idea of its plan, simplicity, and capabilities. As to its application as a *first mover*, we may safely assert that it is unequalled.

The principal part of this gravitating rotatory steam engine consists of a strong cast iron wheel, of any given diameter, having a hollow rim, with three, four, or more arms in it, some of which are also hollow, for conveying steam. A part of the space in the hollow rim of this wheel is very nicely fitted inside with a piece of solid cast iron, or other heavy metal, forming the *gravitating weight* intended to fix the maximum of the desired power, which weight slides *freely* all round this rim, *or more properly the rim round it*, and is made steam tight at or near its ends, either with packing in the common way, or with mercury. The steam is made to enter the wheel at its centre, by a moving steam-tight collar, fitted on the wheel shaft close to the



wheel, and passes by a valve into one of the hollow or *working* arms, which conducts the steam to the rim while that arm is at the lower circumference,* when the valve at the extremity of the arm shuts, and brings the pressure of the steam in contact with the gravitating weight in the hollow rim, where, acting with its expansive force against the end of the weight, and pressing against the closed valve, a separation of these parts takes place, the rotatory motion is generated, and the wheel is moved round by this joint resistance (the weight remaining suspended at the pressure) until that arm is carried round to the top, when the valve attached to it opens and lets the weight slide quite clear of it; *whilst the valve in the opposite arm* being at the bottom in *its* turn, now shuts through and cuts off a small body of the steam at its pressure, and resists the flowing steam as the first one had done before, at the same instant opening the exit valve immediately behind it; the valves attached to the working arms thus alternating with great mechanical regularity, let the speed be ever so great, being instantly and simultaneously *shut* when at the bottom, and *open* when at the top of the circumference.

A rotatory engine of 100 horse power, of this descriptive principle, would not weigh more than 1¾ or 2 tons—need not be over 10 feet diameter—or the hollow rim not more than from 10 to 18 inches wide; for although the longest leverage is at all times the most desirable, yet the difficulty of construction is somewhat increased by so doing. For steamboats, this rotatory engine is put immediately on to the paddle-shaft which crosses the boat, occupying the centre of the boat; or two smaller wheels may be used, placing them near to the sides of the vessel, and on each side of the boiler, which boiler may be in the middle.

As stated before, the motion produced is one continued, steady rotation; there is no waste of steam in the operation, and not an atom of steam goes into the wheel but what *must* exert its whole force —'s subject to no unequal pressure, no retardation or jerking (inseparable from the use of cranks)—no minor parts of machinery to get out of order—no friction except the shaft in its boxes, the steam collar, and the sliding of the gravitating weight through the rim; its advantages also in *time saved* are as much superior to engines on the *old principle*, as a *wheel* lathe is to a *pole* one. The cost of construction will not exceed one fourth the price of an engine on the old principle, nor occupy more than one fifth of the usual space—can be worked on either the high or low pressure principle; when for the latter, he adds a small wheel of the same description, on the same shaft, and not over 4 feet diameter, or 3 inches square in the rim, for an air pump; and makes double steam pipes in the working arms of the large rotatory wheel.

It must be highly gratifying to the lovers of science in general, that this highly important discovery of a new application of steam has been made, and to learn that this engine, which has occupied the attention of scientific gentlemen and practical mechanics, both in Europe and America, from the early days of the highly gifted Watt to the present time, should at length have been discovered amidst the forests of New-Brunswick, by an unassuming mechanic, among other pursuits occupying his winter evenings' amusement.

Labor omnia vincit.

References—*w*, *w*, *w*, *w*, exhibits a ull view of the engine wheel, exposed with one of the sides off, on a scale of a quarter of an inch to a foot; *a*, the gravitating weight, occupying so much of the hollow rim; *b*, *b*, the working arms; *c*, *c*, the valves attached to the arms; *c*, *d*, the lower valve, shut for resistance; *f*, the exit valve open, blowing off the waste steam, supposing the wheel to have already performed half a revolution; *b*, *c*, *g*, the upper arm with the valve open to pass the weight, and the exit valve, *f o*, closed—the dotted lines on the two working arms show the passage for the steam; *h*, the steam-tight collar on the shaft; *i*, the shaft—the motion, as the plan now lays, will be against the sun; *m*, *m*, *m*, *m*, the space occupied with steam when the Union who should not have it in his

* Resembling in operation a dog in a turn-spit; but as the weight will not move like the dog, the steam is introduced between the weight and valve, to represent the dog's motion; or resembling a sailor setting *an-end* a bale or barrel: he places his back against something solid, and setting his feet against the bale, pushes it into its place. In this operation, the steam introduced as before represents the man's motion.

† The model of the first attempt having been destroyed in the great fire at Miramichi, in the year 1825.

* Each working arm is fitted with sliding valves worked by hand gearing, for starting the machinery, or reversing the motion.

in motion. The wheel, as here represented, shows the position of the gravitating weight when working at a high pressure. When the steam gets at a lower pressure, the weight will gravitate and balance lower, and the valves open at a different part of the circumference; and as the opening and shutting of the valves depends on the position of the weight, and are governed by it, they never can come in contact with it, except as exactly wanted. The hand gearing is not represented on the plan, because there are several methods of fitting it; and on so small a scale it would be impossible to give a clear representation of any of them.

[From the Journal of the Franklin Institute.]

Extract of a Report upon the Employment of Hot Air in smelting Iron with Charcoal. By M. E. GUEYMARD, Engineer-in-Chief of Mines.

A successful experiment in the smelting of iron by the aid of the hot air blast, has been made at the furnace of Riouperoux, (Depart. of Isere.) In this furnace, the distance from the blowing machine to the tuyere was insufficient for the erection of the apparatus for heating the air which the machine furnishes; they were obliged, therefore, to make the conduit pipe semicircular.

Six kilns, or ovens, were made with one chimney, 54½ feet, (French,) high, placed against the stack of the furnace. The fuel used in them was anthracite, which was applied to heat a pipe eight inches in diameter, and ten feet long; the part of the tube which traverses the fire was protected by a coating of fire clay, one inch thick, covered by a shield of cast iron, which received the direct action of the fire.

Five months' work have proved the efficacy of this arrangement; the expense of the construction of the apparatus for heating, including a tube for water, amounted to the sum of 5,009 francs, (1,001 dollars.)

Upon the blast pipe, and close to the tuyere of the furnace, is placed an air gauge, and a thermometer. The consumption of fuel by the air oven has been fixed at 150 kilog. (300 lbs.) of anthracite in twenty-four hours.

The experiments were commenced on the 3d of April; the fires were lighted in succession, and, on the 15th of May, five of them being lighted, the temperature of the air was raised to 125° R., (313° Fah.) and even as high as 130° R., (324° Fah.)

Before the introduction of hot air, the furnace was charged each time with 65 kilog. (130 lbs.) of soft charcoal, and with 77 litres (2¾ cubic feet) of ore.

Gradually the hot air was introduced, the temperature being raised more and more. They have been able to use with the same load of charcoal, quantities of ore increasing as 82, 87, 91, 102, and up to 105 litres; a quantity which has not been exceeded. It was observed that, at this maximum charge, the scoria, or slag, was more liquid, and the metal of a better quality, and finer than before.

The consumption of the five fires was 750 kilog. (1500 lbs.) of anthracite in twenty-four hours.

When they worked with cold air, the mouth of the tuyere was eighteen lines, (1½ inches,) in diameter, and the pressure of the air equalled twenty-four inches of water. Upon the introduction of the hot air, the diameter of the mouth was increased to twenty lines, (1⅔ inches,) and the pressure decreased to twenty inches. The number of charges were forty in twenty-four hours, in the first case; but in the second, they could not exceed thirty-four or thirty-five. Afterwards, having restored the pressure to twenty-four inches, they were enabled to increase the number of charges to forty.

The economy of fuel by the use of hot air, at the furnace of Riouperoux, may be estimated by the results of the castings made during the month of June, being about the average of three months' experiments, and about the same with those of the months of July and August.

During the month of June, 57,989 kil. of pig iron were made by the consumption of—Ore, 110,400 litres; charcoal, 1,104 charges.

To obtain the same quantity of metal by using the cold air blast, would have required 1,434 charges of the same charcoal. There was, therefore, a saving of 330 charges, of which the value, at 5 frs. per charge, = f. 1,650

Add 8 days' work of workmen, at 19.36 f.,	154.88	
	1804.88 =	$360.98
Deduct for the expense of heating the air,		
Attendance of fireman,	45	
21,500 kil. anthracite,	516	
Interest, 10 per cent., on cost of the heating apparatus,	41.10	
	602.10 =	120.42
	f. 1202.78 =	$240.56

The benefit resulting from the employment of hot air was, for one month, 1202.78 francs, ($240.56,) or 2,072 f. ($4.14,) per 1000 kilog. (20 cwt.) of the casting produced. This is the minimum gain. Since, the general expenses are not given, and refractory mixtures of ores have frequently been used, during the month of June. It must be observed that the saving of 21,450 kilog. (42,900 lbs.) of charcoal, made in the casting, had required a consumption of 21,500 kilog. (43,000 lbs.) nearly an equal weight of anthracite, of which the value is much less than that of charcoal.

The tuyere was burnt through three or four times in twelve hours, an inconvenience which was remedied by surrounding it with water, after which the working of the furnace became perfectly regular.

The sixth fire having been lighted, the temperature of the air was maintained at 130° R. (324° Fah.), and was sometimes raised above; but no change was found in the working of the furnace, nor could the charge be increased beyond 105 litres (3¾ cubic feet) of mineral, to 65 kilog. (130 lbs.) of charcoal.

The dimensions of the tuyere mouth, and the pressure of the air, were varied, and the results were always inferior to those already stated; so that the maximum effect produced, with the mixture of ores employed, was, with a pressure of twenty-four inches of water, a diameter of tuyere of twenty lines, the temperature of the blast, 130° R. (324° Fahr.) and 105 litres of ore to 65 kilog. of charcoal.

A mixture of more refractory ores than the preceding, and which could not be smelted with the cold air blast, was reduced with much facility, but the charge of ore could not exceed 100 litres. It should be remarked, that the temperature of the blast, which appeared to give a maximum effect at temperatures not exceeding 130° R., was much below the temperature of melted lead, (604° Fah.) to which it had been carried in the experiment made at Vienna in a coke furnace.

Remarks on the foregoing, by the French Editor.

1. M. Gueymard has correctly observed, that unless the air can be heated by the flame which issues from the mouth of the charcoal furnace, those who are not able to procure a cheap combustible for the heating furnace, and continue to work with cold air, must be most unfavorably situated.

Happily, the attempts made in Germany, and the apparatus there contrived, and which has already been imitated in France, have shown that the flame which escapes from the furnace will heat to a proper temperature all the air which is required. It is recommended that at furnaces where charcoal is used, the heat which would otherwise be wasted shall thus be used, instead of the separate apparatus for heating air, thus augmenting the profits of smelting with heated air, by the whole value of the combustible consumed in the fires.

Thus at Riouperoux, the saving which has been made of 1202.10 fr. will be carried to 1763.78 fr. per month, or to 30 fr. per 1000 kilog. of iron produced, in place of 20 fr.

2. The best plan yet presented for heating the air by the flame at the top of the furnace is the following, which differs a little from that employed at Wasseralfingen, and described by M. Volz. The air required for the blast is passed through twenty small columns or vertical tubes, four feet long by two inches and a half in diameter, which are placed in a space or oven near the mouth.

By this means, the air is more heated, and there is less friction, than by passing it through a long tube horizontally, because the air passes slower, and has only four feet to traverse.

The diminution of the resistance to be overcome by the blowing machine is considerable and very important, because the water courses are frequently hardly sufficient, during the summer, to furnish the quantity of air necessary for the consumption of the iron furnaces.

3. The temperature of the air thrown

into the furnace of Wasseralfingen, has been raised constantly to 165° R. (403° Fahr.) and often to 210° R. (504° Fahr.) with increased effect.

M. Gueymard, on the contrary, has observed that the production of iron was not augmented by an elevation of the temperature above 130° R. (324° Fahr.)

At Wasseralfingen, with the air heated to a temperature varying from 165 to 210° R. (329 to 400° Fah.) to produce 1000 kilog. (2000 lbs.) of iron, 1130 kil. (2260 lbs.) of charcoal was consumed, in place of 1730 kilog. (3460 lbs.) burned when the cold air was used. The weekly production has been carried from 527 local quintals to 734 quintals—equal to 357 metrical quintals, (lbs.)

At Riouperoux, with the air heated to 130° R. (266° Fahr.) they have consumed for 1000 kilog. (2000 lbs.) of castings, 1270 kilog. (2540 lbs.) of soft charcoal, in place of 1610 kilog. (3220 lbs.) with cold air.

The differences between the results obtained in these furnaces are not considerable. It is remarked that in both the quantity of charcoal consumed in twenty-four hours is not augmented, but the charge of coal, and the daily produce of casting, has, by the employment of the hot air blast, received a considerable increase.—[Annales des Mines.]

[From the London Mechanics' Magazine.]

Improved Portable Fire-Ladder.

Sir: I have several times had occasion to notice the improved fire-ladders employed by the London Fire Establishment, and as I may frequently have to refer to them again, I take this opportunity of forwarding a description of them for instruction in your Magazine, the more particularly as they cannot be too well known.

Fig. 1.

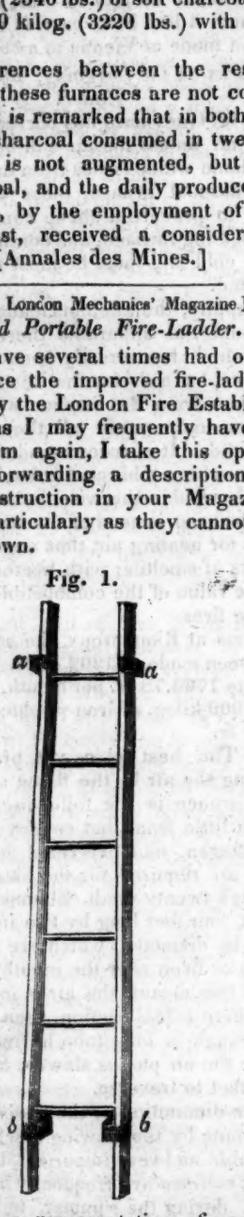


Fig. 1 is a representation of one of the single ladders, on a scale of half an inch to a foot; the top of the ladder is so made, as to slip into the lower part of another, and the iron straps *a a*, and *b b*, embrace the ends, making a safe and substantial joint. As every ladder in the service is made precisely alike, it matters not in what order they are taken, as all will fit one another.

Every engine carries two lengths of these ladders, so that on all occasions the firemen can command a ladder of any required height, by joining a sufficient number of lengths together, and they have frequently found them of infinite service. When used, the first ladder is held as high as the men can conveniently reach, and a second ladder is pushed up to it, the top pieces going into the straps *b b*, while the lower ends of the first ladder enter those marked *a a*, making a secure joint; the second ladder is then raised, and others added until the required elevation is obtained. Three ladders, which will reach about 18 feet, are easily handled; but when four or more lengths are to be joined, the raising of them becomes more difficult in proportion to the height; every little projection in the wall, against which they are raised, catches the ladders, and impedes their ascent.

Fig. 2.

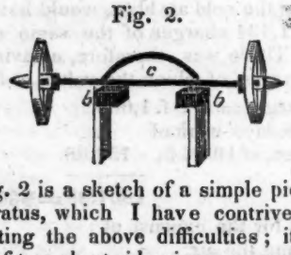


Fig. 2 is a sketch of a simple piece of apparatus, which I have contrived, for obviating the above difficulties; it consists of two short side-pieces, corresponding to the bottom part of a ladder, with the joints *b b*. On the upper part is an iron axle, carrying a pair of small light wheels; a semi-circular connecting-rod of iron preserves the proper position of the side-pieces, when not mounted on the ladder. For convenience of stowage, the wheels take off, when the whole lays flat in a small compass. Each end of the axle *c* is provided with rising springs, similar to those in an umbrella-stick, which allow the wheels to be slipped on the axle, but effectually prevent their sliding off again until the springs are depressed. These springs answer the purpose of linch-pins, without the trouble attending their use, and thus enable the apparatus to be fitted up for use in a few seconds. When mounted with this carriage, any number of lengths may be joined, and the compound ladder run up with the greatest facility, as the wheels would traverse all the inequalities of surface, cornices, window-sills, &c., without subjecting the men to any unpleasant jerks and strains.

Some few provincial fire-offices have adopted this kind of ladder, and I have no doubt that when their advantages are sufficiently known, and duly appreciated their use will become very general.

I remain, Sir, yours respectfully,

Wm. Baddeley.

London, Dec. 10, 1834.

Specification of a Patent granted to Henry Crane, *Merchant, and* John Young, *Patent Lock Manufacturer, for their invention of certain improvements in the making, manufacturing, or forming, of Iron Hoops for Casks, and other purposes.*—Sealed 20th March, 1834.

These improvements in making, manufacturing, or forming, of iron for hoops for casks, and other purposes, consist in giving to the narrow strips of hoop iron a curved figure; that is, bending the strips of iron from the usual straight form in which they are delivered by the ordinary operation of rolling, into such a curve suited to the diameter of the barrel round which the hoops are intended to bind, as will enable them, when formed, to lay close to the conical or elliptical surface of the barrel. This is effected by a peculiar method of acting upon the strips of iron by means of rollers, in order that such required lengths of iron, when cut off and bent round into the circular hoop shape, may be formed slightly tapering, or as the frustrums of cones.

The method by which this is effected, is by drawing out the bar or rod of iron by rolling, in the first instance, in a heated state, in the usual way, until it has been reduced to nearly the required thickness; we then set the rollers, so that their axles incline at a slight angle from the true parallelism, by which means the peripheries of the rollers will be nearer together at one end than at the other, and the strips of iron being then passed between these inclined rollers, will be necessarily compressed, or formed on one edge thicker than at the other edge—that is, of a wedge shape, if cut in a transverse section. This may be done by relieving the screws which confine the axle at one end, and tightening them at the other end; or the same might be effected by making the grooves and ribs of the two rollers inclined to each other, instead of parallel.

When the strip of iron has assumed this wedge shape, in its transverse sectional figures, we then pass it, in its heated state, between a pair of parallel rollers, which, by pressing principally the thicker part of the substance of the strip of iron, causes that thick part to expand and elongate more than the thinner part of the strip, and, consequently, to extend or elongate the strip more on one edge than on the other.

This mode of operation will cause the strip of iron, as it is discharged from the parallel rollers in the last instance, to assume the form of a regular curve, and which curve may be varied to suit any required diameter and inclination of the surface of the cask, or barrel, by varying the inclination of the rollers, or the bevel of the groove, by which the strips are compressed into the wedge shape, that is, thicker on one edge than on the other; and in order to prevent the strip of iron from bending into irregular curves, as it passes in its heated state from the rollers, we have found it useful to place a curved guide, or conductor, near the rollers, which will enable the workman, as he

draws out the strip of iron from the rollers, to preserve its desired figure with great accuracy.

Lastly, we wish it to be observed, that as the rolling of iron, for the purpose of bringing it into thin and narrow strips for the manufacture of hoops, is not new, of course that process is not to be considered as claimed by us; but the taking of strips of iron, previously made thicker on one edge than on the other, and passing them between parallel rollers, for the purpose of expanding the metal on one side of the strip more than on the other side, and thereby giving to the strip a curved figure as it is discharged from the rollers, being, to the best of our knowledge and belief, new, and never before employed by any other person, or persons, in the manufacturing of hoops, we claim that mode of operation as our invention, and forming the essential feature of our present patent right.—[Lond. Journ.]

AGRICULTURE, &c.

[*From the New-York Farmer.*]

Adam, the Gardener. By CHARLES COWDEN CLARKE, Author of Tales in Prose from Chaucer: Revised by the Editor of the Popular Library. Boston, JOHN ALLEN & Co., 1835, 18mo., pages 252.

Every attempt to implant a love for rural pursuits in the breasts of youth should be very favorably regarded—as likely to be productive of great and varied benefit, not only in reference to the increased capabilities of adding to the physical resources, but to the moral worth, of the rising generation. With pleasure, therefore, we opened this little volume. Its perusal has led us to approve both of its contents, and of the taste and judgment that selected it to form a part of the Juvenile Popular Library.

Although the work was written, so far as practical directions are concerned, for the climate of England, yet it abounds in so much that is of general interest, and the whole, too, is in so lively and pleasing style, that no youth can fail of deriving pleasure in its perusal. For those of our own country, residing south of New-Jersey, much of the practical information is very appropriate, and much needed.

Mr. and Mrs. Stock, the parents of Adam, appear admirably qualified, or rather properly exert themselves, to teach the young idea how to shoot. The following extracts, under the head of March, are lengthy, but they convey so many useful suggestions to parents, and afford so much for a just comparison of the climate of England with that of the United States, that our readers will not, we presume, think them unworthy the space they occupy in our columns.

MARCH.

"As yet the trembling year is unconfirm'd,
And winter oft at eve resumes the breeze,
Chills the pale morn, and bids his driving sleets
Deform the day, delightless. * * *
* * * * At length, array'd
In all the colors of the flushing year,
By nature's swift and secret-working hand,
The garden glows."

"The last two or three days of February, and the first week of the present month, March, were so stormy, and attended with such floods of rain, that Mr. Stock found it was of very little use attempting to do any thing in the garden; he therefore told Adam, that as the weather was so unfavorable, he should take advantage of it, and get on as fast as he could with his arithmetic and geography; 'for,' said he, 'you know how often I have told you that the real meaning of *independence* is our being able to do every thing for ourselves. Now, you are aware, that no man *could* be able to prepare and make *every thing* he wanted. A North American Indian, or any other wild man, would, because his wants are fewer than ours; every thing he requires, he *can* make. His mat for a bed; his bow and arrows, and fishing lines and nets, to procure him food; and he can build himself a hut. But we are brought up in a different manner from these people, and our habits of life compel us to stand in need of many things that an Indian never thought of. Therefore an Indian is more independent than we are. But, if we choose, we may be very independent, too; and the way is, by getting all the useful knowledge we can; by being diligent in our business, and contented with what we gain. Now, Adam, you will never be an independent man if you know no more of arithmetic than you do at present; because you will not be able to calculate the value of the things which you wish to sell, but must have a person to do this for you; and then you will be *dependent* indeed. You cannot think of this too often, that if you wish not to be in the power of any man living, (for that is being *independent*,) you must acquire all the knowledge possible; be honest, and be contented.'

"This dreary week having passed, and Adam, to say the truth, tired of confinement, the weather cleared, and a brisk wind sprung up, which, after a few hours, dried the surface of the ground so that they could go to work. Mr. Stock told Adam that this would be a very busy month for them. 'In the first place,' said he, 'we must weed the beds which we sowed the last two months. The onions, the parsnips, the carrots, the lettuces, and, indeed, all the beds. And if we persevere now, while the weeds are young, we shall keep the garden clear, and benefit the plants. But you must be very careful, and distinguish the weeds.' This was a tedious task, and Adam began to be wearied; but as his father helped him, and kept steadily at it, he did not complain. When they had finished, his father showed him how to dress the artichokes, and take off the suckers for fresh plants. Afterwards he saw him fork up and rake up the asparagus, and sow the seeds for fresh beds. When this was done, they sowed some more beet-root, beans, and broccoli, for the first crop; carrots, parsnips, and onions, for the principal crop, and for the winter. His father showed him, too, how to prick out the celery, and plant it: and then they transplanted the young cauliflower plants which had been all the winter under glasses: they also sowed radishes and mustard and cress, covering up the beds from the cold winds. 'Now, Adam,' said his father, 'you may take the barrow, and wheel in some manure from the yard, and we will make a cucumber bed. When we have finished this, we will plant out our potatoes; and I will show you how to cut them into quarters, so as to leave in each partition what is called an eye; for where there is an eye, there will be a shoot, and a fresh plant. And when this is done we will sow two or three more rows of our favorite peas; and we will have one or more beds of turnips." All this, I should suppose, occupied them nearly a fortnight. During the time they were at work, the season was very various. It might truly be called 'March many-weathers;' for in the course of one day they had wind, and sunshine, snow, rain, and fierce storms of hail. 'It is well, Adam,' said Mr. Stock, 'that we covered up our tender flowers, and screened the fruit trees; or the opening blossoms would have suffered bitterly from 'the slanting bullets of the storm.' But we must not complain; for all this violent weather had better come now than later in the year, when our blossoms would be more opened. And indeed, it is pleasant to have the gleams of sunshine after the dark storms, and to see the great clouds moving before the wind like mountains of snow, and to watch the shadows of them passing over the ploughed lands; and when they are far off, to see the showers descend in long streaks. See, now, how beautiful those pigeons look, hurrying home after their meal, with the black cloud behind them! Then we have the lively song of the chaffinch between the showers. It is of the greatest service to the rising vegetation to have these changes of rain, wind, and sunshine; because the moisture is allowed to sink to the roots of the plants, and the warmth of the sun brings them and the seeds forward. * * * * *

"'Come, you shall help me plant out these few sweet herbs, which I sowed last year; and here we will have a row of parsley; then, if the weather be likely to hold up for the remainder of the day, we will dine early, and take a long walk.' They did so, and away they all went. By the side of a farm-yard, on a dead branch, at the top of an elm tree, they heard a thrush making the homestead ring with his fine note. Their father told them that, if they were now near some wood of beech trees, they would hear the ring-dove cooing, and perhaps the crowing of pheasants, the most beautiful birds in our country. 'The rooks also are now in a great bustle,' said he, 'building their nests; and as the spring is fully set in, and the air mild, I make no doubt we shall see the bat fluttering like a butterfly around the farm-yards in search of gnats and other insects, its food. I told you, if you recollect, that the bat is one of the animals that remain *torpid* all the winter; that is, that it *sleeps* through the whole of that season. It is generally to be found in the roofs of thatched cottages, and in small holes in the walls of old out-houses, hanging by the hind legs, and covered over with its wings. If you had found one during the severe weather of January, and had kept it in your hand for some time, or placed it near the fire, it would have awakened and begun to fly about. But it would be a cruel thing to do so, for as there is no food for it at that time of the year, the little creature would certainly die.' Adam said it could go to sleep again. 'Yes,' said his father, 'so it could; and sometimes, when we have two or three warm days during the winter season, they will awake and come from their hiding-places; but then the same warmth brings forth the insects which are their food, and when the frosty wind returns, they *do* go to sleep again, well fed. But if you were to rouse one by bringing him to the fire, he would wake almost starved from his long fasting, and would flutter about in search of food. If he did not soon meet with some, being so weak with hunger, he would very shortly die.

(To be continued.)

Political Agriculture. By H. C. [For the Quarterly Journal of Agriculture, Mechanics, and Manufactures.]

(Concluded.)

The memorial of the subscribers to the Congress of the United States, respectfully represents:

That agriculture is the great interest of every civilized community—the mother of all the arts—and the basis of all national prosperity—and in this view claims the fostering care of every patriotic and enlightened government.

That the United States of North America is, and must continue to be, essentially an agricultural people; and that an improved agriculture must directly and most favorably conduce to its manufactures and commerce, and to the substantial comfort and best interests of the whole people.

That the agriculture of the United States, although in an improving, is yet in a very imperfect condition; the resources of the country are very partially unfolded; the cultivation yields by no means those ample returns which it may be made to command; and is far from that improvement and perfection to which it may with the highest advantage be advanced.

That it would contribute essentially and immediately to this object: that a general agricultural survey of the whole country, should be undertaken and gradually prosecuted to its completion. That this survey should embrace the actual condition of its agriculture in different parts of the country, going, as far as practicable, from personal observation and intercourse with the most intelligent and successful cultivators, into detailed and statistical accounts of the crops cultivated, the modes of cultivation, the average yield, the value and application of labor, the disposal of the produce, the implements of husbandry, the condition and capabilities of the soil, the improvements of which the agriculture of any particular part of the country is susceptible, and, in general, whatever may be immediately connected with its agricultural advantage and prosperity, particularly in the manner of Arthur Young's Agricultural Tours, Radcliffe's Survey of the Agriculture of Flanders, the County Reports of England, Sinclair's Reports of the Agriculture, and his particular account of the Husbandry of Scotland.

That such survey should particularly embrace the cultivation of the leading products of the country—maize, wheat, cotton, sugar, tobacco, hemp, wool, and silk; the cultivation of the most valuable forest trees; together with other crops and products not less essential to comfort and use, but of less comparative importance and extent; and the character, rearing, and management of every species of live stock.

That the information thus obtained should be immediately furnished to the Government, and measures taken for its general diffusion.

Your memorialists would further respectfully suggest, that to accomplish this most valuable object, there be appointed a joint and standing committee of both Houses of Congress; or otherwise, there be selected, in any mode deemed best, as many as five individuals from the citizens at large, who shall constitute a Board of Agriculture for the United States.

That there be appointed one or more competent individuals, whose duty it shall be to prosecute such survey; and whose further duty it shall be to be in attendance upon the Board of Agriculture at Washington at least one month during every session of Congress; and to them make a full report of his or their doings, surveys, and travels; and who shall themselves act as Secretaries to said Board.

That it shall be the duty of said surveyor or surveyors, to spend at least —— months in every year, under the direction of said Board, in the actual and personal survey of different parts of the country, with a view to obtaining and diffusing the fullest agricultural information; and that he or they shall present a written and full report of all his or their doings and observations annually at the first meeting of the board.

That it be the duty of the said Secretary or Secretaries, under the sanction and direction of said committee, to procure models of all new and valuable machines to be employed for agricultural purposes, one of each kind of which, as far as may be adapted to that part of the country, shall be deposited at Washington, and at the seat of government of each State in the Union; to open a correspondence with distinguished individuals abroad, and in different parts of the country, on the subjects of agricultural interest and improvement, and to obtain and circulate such valuable seeds or plants for agricultural purposes as it may be desirable to introduce into the country, or diffuse in different parts of it.

That it be the duty of the said Secretary or Secretaries to manage and superintend, under the sanction and order of said Board, the publication and distribution of such reports and papers as may be deemed of general utility and importance.

That for these objects there be annually appropriated the sum of —— dollars.

Such, Mr. Editor, are the outlines of a plan, simple enough, in my opinion perfectly feasible, and of the most obvious and highest utility; and the expense of which, compared with the public advantages to accrue from it, would be of no consideration; and compared with other expenditures of the Government for objects of far more doubtful utility, would be hardly a drop to the ocean. How many individuals it might be necessary to engage in such survey, and how long a time might be occupied in it, would be matters of further consideration. One active, intelligent, and practical man might accomplish it. Two would doubtless be ample. It would not be an affair to be hurried, and the statistical information to be collected would require great care and exact inquiry. Six years would not be too short a time, if the country were divided into two great sections, to accomplish it in a proper manner. As the survey progressed, much valuable matter would be gradually elicited. Every farmer and planter of any consideration in the country would be excited and interested by it; would from patriotic motives be emulous to communicate all the information in his power; and from personal considerations, would be anxious to put his property in the best condition for examination. Massachusetts has already set the example of a thorough and able geological survey of her territory. New-York has done the same in respect to several of her counties; but, precisely to what extent, I am not apprized. An agricultural survey, conducted in the manner above described, would be of more value, and might itself be instrumental of furnishing much geological information; and exposing many of the mineral as well as vegetable treasures of the country.

I shall not now go farther into detail of the advantages which I think would accrue to the country, if this project could be intelligently and properly executed. I hope it will not be regarded as wholly visionary. I offer these suggestions with diffidence; but with the strong desire that they may attract the attention of some of our distinguished statesmen and citizens, who estimate justly the importance of an improved agriculture, and are willing to labor at its advancement; and that it will call out from such men opinions and discussions, which, if not favorable to it, will lead to wise and better plans. No one will listen to such opinions with more satisfaction, or co-operate, in any useful and feasible projects for the same objects, as far as my humble power extends, than myself.

H. C.

Meadowbanks, Jan. 30, 1835.

Surinam Potatoe. By Alex. Edgar.

[For the New-York Farmer.]

Mr. Fleet,—Among the many excellent varieties of potatoes cultivated in America, the yam, or Surinam potatoe, is not to be found. It has been long known in Scotland, and cultivated to a great extent for the purpose of feeding cattle. The produce is from 15 to 20 tons per Scottish acre. It is an excellent substitute for turnips in the spring of the year, when turnips are done. It will grow on soils too that the common turnip and ruta baga would not yield roots exceeding a common sized egg. Yams present every advantage which can be got from ruta baga, and are not so pettish in their growth. Their culture is a matter of far less difficulty, as such will grow upon soils where ruta baga would starve. They require less manure, and may be planted as late in the season as the others, thereby enabling the farmer to bestow the like previous preparation upon the ground, the want of which is a general argument against ordinary potatoe husbandry. If you think the above lines worth a place in the Farmer, they are entirely at your service. I have read your Farmer seven years, with the greatest of pleasure and profit too; and was it in my power, there should not be a farmer nor a gardener in

possession; for without reading, a farmer may plough and mow, and a gardener may dig and hoe, to the end of their existence, and then know but little of the art of their profession.

ALEX. EDGAR.

Hartford, Conn., Jan. 22, 1835.

A Substitute for the Lima Bean. By WM. PRINCE & SONS. [For the New-York Farmer.]

DEAR SIR,—We think the point has at length been attained of obtaining a substitute for the Lima Bean, suited to a more northern climate than that very tender variety. The *Prolific Lima* is of recent introduction, and not having been cultivated beyond the limits of two or three gardens, is absolutely unknown to the American public. It is white, or rather cream-colored, nearly the size of the Small Lima, but exceeding it in thickness, and has a peculiarly rich appearance, which is verified by its quality. It fully equals, and it is even contended that it excels, both the other Lima varieties in richness; is at least two weeks earlier, and its produce is far greater, we think we may say four-fold. Like the Lima, it is used as a shell bean, and we think, from its various advantages, it promises to rival that variety even here, and to supersede it in more northern latitudes. We do not invite applications for it, having only a small supply of two bushels, but in the autumn of the present year all applicants can receive such quantity as they desire. The Dwarf Bonavista Bean also deserves particular notice for its remarkable richness and delicacy, and may be considered as holding the same rank in this respect among the dwarf or bush varieties that the Lima does among the climbers; it is also exceedingly prolific.

We intend, in a future communication, to mention the public spirited individual to whom our country is indebted for the introduction of the Prolific Lima Bean, and other very choice horticultural productions, in a manner better calculated to do him justice, as a *public benefactor*, than we could possibly do in this short article. Yours, very respectfully,

WM. PRINCE & SONS.

Linnæan Botanic Garden, Flushing, Feb. 2, 1835.

On Chess. By FARMER C. [For the New-York Farmer.]

MR. EDITOR,—In looking over old papers not long since, I was somewhat pleased with a description of the plant commonly called "chess," by a New-England farmer, in some of the last numbers of the fourth volume of the New-York Farmer. I here give a contrary opinion to his.

The vulgar opinion respecting the origin of the chess plant is too well known to need at this time a particular account. It may not be generally known, that many farmers are quite indifferent about its being mixed with seed wheat or rye, asserting that it is not produced by its own seed. When error of opinion results in a practice so absurd, it is time for those who know better to enter a protest. It is frequently inquired, if chess does not come from wheat, why do we find it on new ground where wheat is the first crop, and where chess has never been sown? It is a circumstance familiar to all who are acquainted with clearing land, that in places where fire passes over the ground, many plants spring up and grow spontaneously, and where log-heaps have been burned, we have frequently seen the earth entirely covered with sumach (*Rhus tyhinum*), and fire weed (*Senecio hieracifolius*). Now, chess, when mixed with wheat, is extremely deceitful, and we conclude it may either have been sown unperceived with the grain, or it may have been scattered by birds, or otherwise. This seed is so small as to render its detection, to a careless observer, improbable. It is true, botanists have given us a list of hybridous plants, but the chess has not suffered the disgrace of being placed on the catalogue; nor is it pretended by the advocates of this belief, that seed-wheat, from which this monster is said to rise, is guilty of vegetable adultery. They admit that the wheat plant may rise perfect from the ground, but after being injured by cattle or unfavorable situations, its *nature* becomes changed, and the stalk, instead of being crowned with the golden grain, is only burthened with the shrivelled chess. Now would it not be perfectly safe to assert that nothing analogous to such transformation can be produced from the vegetable kingdom: we here remark, that chess, though a weaker plant than wheat, is yet more hardy, and where that grain is thick and flourishing, the chess drops among the stubble; but when the winter, cattle, or excess of moisture, have injured the wheat, the other shoots forward with renewed vigor, and fills the vacancy. Chess is a perfect plant, as different from wheat as that is from other grain, with seed *completely* capable of vegetating, and known in science by the name of *Bromus secalinus*. Botanists, whose observations are incomparably closer than the asserters of this doctrine, would no sooner admit this plant to be a degeneracy of nature, because it grows in our wheat fields, than the zoologist would admit a goat to be the degenerate offspring of the cow, because they fed in the same pasture.

FARMER C——.

Manllus, Jan. 20, 1835.

Produce of a Small Farm. By H. C. To the Editor of the New-York Farmer.

MR. EDITOR,—I procured from an esteemed neighbor, Mr. Horatio Hoyt, the subjoined account of the produce of three and a half acres of land in Deerfield, Mass., in 1833, a result highly creditable to the cultivator and the soil; and which, I presume, will be interesting to some of your readers. We do not say that it is more than others have done or can do; very far from this; but we hope it may induce others to say what they have done or can do, for such communications cannot fail to be interesting and useful to the agricultural community. The produce is estimated at the market prices at the time.

Yours, respectfully,

H. C.

Hay, 3½ tons, at $12 per ton,	$42 00
Wheat, 11 bushels, at $1 50 per bushel,	16 50
Stubble and clover, 1 ton,	4 00
Corn fodder, stalks, blades and husks, 3 tons,	10 00
Corn, 120 bushels, at 80 cts.	96 00
Potatoes, 117 bushels, at 20 cts.	23 40
Apples, 60 bushels, at 12½ cts.	7 50
Pumpkins, 1 cart load,	
	$199 40

BURYING TURNIPS.—OUT-DOOR CELLARS.—Early in last December I slightly buried some turnips with straw and earth in a situation well protected from cold winds, and exposed to the sun. In the latter part of January I took them out. Notwithstanding the previous very severe weather, they were in growing state, having sprouts half an inch long. My impression is, that a shady, cool situation is preferable, although it is probable that the heat exists in the turnips.

In an out-door, or dirt cellar, there were, in a little cooler place, a considerable quantity of potatoes. During some of our most severe weather, the temperature in this cellar was such as to cause the evaporated moisture from the potatoes to remain in small drops on the rafters and planks. Such cellars are far the best for preserving vegetables. They should be well covered with earth, and very tight about the door. A small aperture at the top, rising in steeple form, two feet above the outer surface, should be made for a ventilation. S. F.

INFLUENCE OF COLOR ON HEAT, THE DEPOSITION OF DEW, AND OF ODORS.—Dr. Stark, in a paper in Jameson's Journal, vol. xvii. p. 65, has shown, by experiment, that one principle operates in the production of all the above results. A black color, whether in solids or fluids, absorbs heat more rapidly, and parts with it most rapidly; dew is also deposited more rapidly on this color than on any other, and with proportionate rapidity evaporated from it. Odors, whether agreeable, offensive, or of infectious diseases, are, in like manner, absorbed with greater rapidity, and in greater quantity, in a given time, by black colors; and discharged by these colors with proportionate quickness. The other colors are next to black in the order of blue, brown, green, red, yellow, and lastly white; which last absorbs and gives out heat, dew, and odor more slowly than any other color. These facts will afford valuable hints to gardeners for the colors of walls, of walks, of rockwork, of soils, of coverings for protection, and even of their dresses.—[Gard. Mag.]

NEW POTATOES.—We were shown last week a quart or two of new potatoes, just out of their *warm bed*. They were raised by the gardener of Col. B. C. Howard, and have come to their present state from the planting within the last seven weeks. One of them now before us is about an inch in diameter. They are of the kind called in our catalogue "earliest white."—[Baltimore Farmer.]

NEW-YORK AMERICAN.

MARCH 7—14, 1835.

LATE FROM FRANCE.

The *Rhone*, packet ship, from Havre, brings Paris accounts to the 11th ult. They are highly favorable, certainly, to our affairs.

The various bureaux into which the Chamber is divided, have each elected a member to compose the committee to which the examination and preparation of a Report, on the American indemnity, are confided. Of these nine members, all but one are said to be in favor of carrying the Treaty into effect. M. *Delessert*, who is chosen the Chairman and Reporter of the Committee, is understood to be clear and strenuous in that opinion.

We feel great confidence that at our Havre P. S. states, "all will be well" with the treaty.

The course of the thing was this. On Thursday and Friday, 5th and 6th February, the Chamber, in its bureaus, and *not in public sitting*, discussed the proposed law. After the discussion in each bureau, and when the sentiments of members were ascertained, the committee of nine was formed by one from each bureau. One only of the nine bureaus was—not hostile to the project—but in favor of reducing the amount proposed.

On the 7th February the report of the Senate's unanimous vote reached Paris. It is thus announced by the *Journal des Debats*: "This is a fresh and striking censure of that portion of the President's Message which concerns France."—Such, certainly, was not its character, for it sustained the leading views of the Message, though objecting to the remedy proposed.

We annex various letters received by us, and copy some from the Courier and Enquirer.

Extract of a letter dated

PARIS, 6th FEBRUARY, 1835.

As we have led you to expect, every thing has gone in favor of the American question here.—The committee chosen to report upon this subject *have been* seven out of nine in favor of it.—This is a further indication of the sense of the Chamber, and we now consider the majority certain, and are inclined to believe that it may be as considerable as *fifty*. This month, we have reason to think, will see the execution of the tr

Extract of a letter to the Editor, dated

HARVE, Feb. 7, 1835.

The Committee has been named, to examine and report on the American Treaty. The discussion will take place in ten or twelve days hence.

The Chamber is divided into nine bureaux: each names a member, and of the nine named, eight are in favor of the Treaty, that is, to vote the 25 millions. The other is for the Treaty, but thinks the sum ought to be reduced. A discussion takes place at the nominations in the bureaux, and as far as opinions could be ascertained, not only as to those named, but those not named, there must be a decided majority in favor of the projet de loi now before the Chamber.

A Postscript of the 8th says—

All going on well. The packet cannot sail to-day. If you hear nothing further from me, take it for granted there is nothing new.

The *Journal du Havre* of 7th February, gives this under the head of "Private Correspondence," dated Paris 6th. It makes the vote in our favor *certain*, as it strikes us.

The nomination of a Committee all ministerial, made yesterday by the bureaus of the Chamber, for the examination of the American credit, must not be taken as pre-figuring absolutely the adoption of the law proposed. Many circumstances may, before the discussion takes place, and during the discussion, modify the ideas of the Chamber. It is to be remarked, moreover, that in all the bureaus many members who did not vote against the rejection of the credit asked for, nevertheless expressed the opinion, that it might be reduced.

As for the rest, never did a question witness more extraordinary changes of opinion. In one bureau *M. Realier Dumas* and *M. Delessert*, who heretofore were for reducing the credit to thirteen millions, voted yesterday for *twenty-five*, and in consequence of this vote M. Delessert was named chairman of the Committee. Yet *M. Delessert* was a member of the Committee of 1831 and in the majority of that Committee which voted *thirteen millions only*.

Many Ministerial Deputies expressed opinions more or less in favor of the law, especially Messrs. Bresson, Lascases, Malleville, and Beslay, the father, (who, like M. Delessert, was a member of the Committee of 1831) Moreover, Messrs. Maes, Ducos, de Tracy, de Sade, Lafayette, the son, warmly advocated the law, the rejection of which they would look upon as a manifestation of want of sympathy with the American people—the people of all others whom France should look upon as her most faithful ally.

We annex the names of the Deputies who in the bureaux spoke for and against the law:

AGAINST.—Messrs. Salverte, Lepelletier d'Aulnay, Lamartine, De Ranée, Teste, Mathieu, Lascases, Roger, Bresson, Isambert, Hector d'Aulnay, Dugabé, Lacrosse, Odillon Barrot, Chas. Dupin, Berryer, Bignon, and others.

FOR THE LAW.—Messrs. Ganneron, Bugeaud, Maes, Jaubert, Meynard, Realier Dumas, Anisson Dupenon, B. Delessert, Amilhan, Dumon, Ducos, Persil, De Rigny, Thiers, Pond, Pulaille, Duchâtel, Keratry, Fleury De Chaboullon, Tracy, Sade, Lafayette, &c. &c.

There were at one time 406 deputies present in the Bureaux—401 ballots were received, of which about 240 were in favor of, and 161 against, the law as proposed; a majority, which a change of 40 votes would also change: and it is not impossible that amendments tending to reconcile the desire of doing what is just, with that of not approving, what through thoughtlessness, if not from speculation, is stipulated in the treaty, may bring about such a result.

The Chamber of Commerce of Marseilles has addressed the following letter to the Minister of Commerce:

MARSEILLES, JAN. 31.

An important political question, one of peace or war, is soon to be decided—shall the treaty with the United States be ratified, or a second time rejected by the Chamber? Notwithstanding the apprehension felt by the commerce of this city, notwithstanding the uneasiness which pervades it, notwithstanding the frightful prospect of disasters which would overwhelm it, in case the friendly relations between France and the United States should be interrupted, we have, until now, refrained from expressing to you, our opinion upon a question of such great interest to us.

Full of confidence in our Legislators, we were persuaded, as we still are, that imitating the example of His Majesty, they will learn how to conciliate what is required by national dignity, with what is due to the interests of commerce and industry, now so seriously menaced.

We would be among the first to offer these as a sacrifice to our country, if the national honor were compromitted, but we shall not be so here, because true honor consists in being just, in repairing the evil one may have committed, in paying what one owes, in fulfilling engagements entered into. We did not suppose that truths such as these could be made matter of doubt, and therefore it was Mr. Minister that we awaited calmly the termination of a discussion in which we should see nothing to dread, if the spirit of party, for the furtherance of its own ends, had not mingled with the question.

Of a question of good faith, a point of national honor is sought to be made—the substance is lost sight of, to cavil at the form, and without examining whether the claim upon us is legitimate, we are told to look at the unbecoming manner in which it is presented; pains are taken to represent the sum stipulated as excessive, without making any allowance for the advantages on our side from the treaty, and which ensure to our industry and to the public treasury, an immense equivalent for the momentary sacrifice imposed upon us by true national honor. No scruple is felt about hazarding our fortunate peace, which is for all France a source of prosperity: on the contrary, we are urged on to war, which will augment the debt now refused to be paid, diminish the public resources, ruin commerce and industry, and of which the whole result would be, to revive the hopes of the enemies of Liberty, in forcing into hostilities, two nations whose institutions repose upon that base.

In this state of things, and when uncertainty has already checked the activity of all sorts of industry—when all maritime expeditions are suspended, from a provident caution lest the ills under which our city has heretofore suffered so much, should be again visited on us,—we esteem it a duty to break silence, and to oppose the voice of apprehension of our citizens, to the perfidious joy of those who found upon our misfortunes, the hopes of making their reveries triumphant.

It belongs not to us to examine this question, beyond its bearings upon us. It is enough for us to point out to Government, the danger to which our commercial relations would be exposed, if a second rejection of the treaty with the United States, should become the signal for a conflagration, of which the consequences cannot be looked at without terror.

Our intercourse with Americans is immense: no one more than you is capable of appreciating it. It is impossible to presume that interests of such magnitude should be without influence upon the decision to be formed. It is to you, Mr. Minister, the enlightened champion of the interests of commerce, who have already done so much for it, that we take the liberty of addressing ourselves, in order to beg you to become our advocate in the Chamber. It is not for the commerce of our city alone that we ask your aid, but for all France—whose growing prosperity is the envy of her enemies—their criminal hopes will not be realized—peace will not be interrupted. Your opinion cannot fail to exercise great influence in a discussion of which we await the result with equal impatience and anxiety.

[Here the signatures follow.]

This document, published, as it is, in the Journal des Debats, must thence be deemed to have the sanction of Ministers.

GREAT BRITAIN.

By the way of Havre, we have the following intelligence from *Liverpool*, *2d. Feb.* Markets firm, with a tendency to rise. Advices express great confidence in the future.

Liverpool, 5th.—The market very animated on the 4th, with a rise of 1-8 to 1-4 in Cotton, was checked by the arrival of *fourteen vessels* from the United States.

The accounts from London are to the 6th February. They furnish little of interest.

The pregnancy of the Queen of England—which, when first alluded to in the Court Journal, was deemed a "calumny"—is confidently asserted at the latest dates; and the joy of the Tories—at the prospect of thus shutting out the Princess *Victoria*, and a liberal *Regent*—is excessive.

Mr. *Manners Sutton*, it seems, is to be dropped as Speaker by the Ministry, and Mr. *Abercromby* is to be put forward.

His Majesty will open the new Parliament in person, and will leave Brighton for that purpose on the 19th inst., accompanied by the Queen and several of the suite.—[Brighton Gazette.]

We believe that Count Pozzo di Borgo's stay

ere will not extend to more than a month after the assembling of the new Parliament, as he will then return to resume his functions at the Tuileries. Count Woronzow, on whom the Czar has determined to confer the post of Ambassador to this Court, will not arrive until the advance of the Spring. He was lately Governor-General of Odessa, and is the son of the late respected Count Simon Woronzow, the predecessor of Prince Lieven here, and who died in London at an advanced age in 1832.—[Chronicle.]

Joseph Bonaparte came to town from his seat in the country for the express purpose of meeting the Duke of Leuchtenberg, after he had visited and dined with the King at Brighton. The Duke and Joseph Bonaparte met at the house of a friend, where they were closeted for several hours.—[Courier.]

The report of the pregnancy of the Queen, though not officially announced, is generally believed in the higher circles.

According to calculation, which we believe to be as accurate as possible, and rather unfavorable than otherwise, the strength of parties in the Commons is as follows: Anti-Ministerialists 370, Ministerialists 237, Doubtful 51. Total 658.—[Courier.]

The opposition party are in great spirits, and are spreading reports that they have secured at least 260 votes upon the question of the Speakership. This, if true, insures a majority, we should think; but we regret to see an issue taken upon such a question.—[Herald.]

London, Feb. 6. Intelligence has been received of the loss of the fine American ship *Lyon*, which sailed from Liverpool on Friday.—She was bound to New Orleans, and was commanded by Captain Bursley, brother of Captain Bursley of the American packet ship Orpheus.—The crew consisted of 14 men, including the Captain. She struck on a ledge of rocks about three o'clock on the morning of the first of February, a short distance from Portpatrick, nearer to the Irish than the Scotch coast. The wind at the time was blowing fresh from the northwest, and she immediately went to pieces. Three of the crew succeeded in reaching the nearest land, and were saved; but the remainder, consisting of the Captain and ten men, have found a watery grave. The Lyon sailed from the highly respectable house of Haggerty & Jerdein of this town.—[Liverpool Albion.]

SUMMARY.

Diplomatic relations with Portugal.—We find in the Globe of Wednesday the following notice:

Official.—Department of State.—Senor Joaquim Cesar de Figaniere e Morao yesterday presented his credentials, and was re-recognised as Charged' Affaires of Portugal.

March 11, 1835.

Naval Dry Dock in New York.—The following act authorising the construction of a Dry Dock "in the harbor of New York, or its adjacent waters," was passed at the last session of Congress.

AN ACT authorizing the construction of a dry dock for the naval service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Navy, under the direction of the President of the United States be, and he is hereby, authorized to purchase a site, should it be deemed most advisable, and to cause a dry dock for the naval service to be constructed, upon the most approved plan, in the harbor of New York or its adjacent waters; and that towards defraying the expense thereof, the sum of one hundred thousand dollars be, and the same is hereby appropriated, to be paid out of any money in the Treasury not otherwise appropriated.

Approved, March 3, 1835.

Promotions in the Navy.—Masters Commandant Foxall A. Parker, Edward R. M'Call, Daniel Turner and David Conner, to be Captains. Lieutenants Thomas Cribb, Edward B. Babbitt, James Armstrong and Joseph Smoot, to be Masters Commandant. Passed Midshipmen Arthur Sinclair, Edwin W. Moore, Robert B. Hitchcock C. H. A. H. Kennedy, Thomas W. Brent, George M. Bache, Ezra T. Doughty, Joseph Lanman, John W. Cox, and John K. Michell to be Lieutenants.

The Constitution frigate was towed up from the lower bay to the Navy Yard, Wednsday after noon by steamboats American Eagle and Hercules.

M. Serrurier, the French Minister, his family and suite, were passengers in the packet ship Albany, which sailed from this port yesterday for Havre.

[*From the Pensacola Gazette, of Feb. 21st.*]

Naval.—Arrived here, on Sunday last, the United States Sloop of War Vandalia. We understand that the cold weather experienced here on the 7th and 8th inst. was felt on board the Vandalia, then at sea, on the South side of the Island of Cuba.

On Tuesday last the United States Schooner Grampus, from a cruise among the Virgin, Windward and Leeward Islands and on the Spanish Main. She is last from Guracoa and Jamaca.

The brig Lexington, from Cadiz, which was ashore at the Hook, got off at high water yesterday, after throwing over 2,500 bushels salt, arrived at the wharf last evening in tow of the steamboat Hercules. She does not leak, and has sustained little or no injury. The cargo consisted of 110 lasts salt to E. Mix, and 4 boxes sulphate bark to P. Harmony & Co.

The lighter Walter R. Jones, Schenck, which was engaged in discharging the cargo of the ship Sovereign, and blown off in the violent gale of the 27th ult., and was supposed to be lost, has we are happy to say, returned in safety.—[Gazette.]

Affecting and unusual occurrence.—In the midst of the public service yesterday afternoon, in the 2d Dutch Church, the congregation was thrown into a great confusion by the sudden death of the wife of Mr. Anthony Van Santford, an aged member of that church. Mrs. V. had attended church in her usual health and a moment before the painful occurrence, was observed intently fixed on the preacher, who we understand was preaching on Heb. iii 7, and had just concluded some remarks on the uncertainty of life. The first indication that any thing had taken place, was hearing what seemed a loud snore, which directed all eyes to her—her head had fallen forward—immediately she was lifted up, and it was supposed for a moment she had fainted; she breathed a few times, and then it was seen, that her spirit had departed. Most solemn admonition to all! Most affecting seal to the truths the congregation were hearing! The effect of the annunciation from the pulpit at the close of the worship, that she was dead, was indescribable.—[Albany Evening Journal, of Wednesday.]

From the South.—By the steam packet *Wm. Gibbons*, Captain Wright, we have received Charleston papers to the evening of the 7th inst. with Mobile dates to the 24th, and New Orleans to the 21st ult.

Charleston, Feb. 7.—*The Weather.*—We must again advert to this almost interminable topic, to note the disagreeable change which has taken place, giving us rain and gloom, in lieu of the lovely snow fall, cheering though cold, and dissolving into filthy mud the mantle of purity which so lately covered and adorned our streets. About 9 o'clock, on Thursday night, snow and sleet re-commenced to fall in thick showers, but were soon succeeded by a drenching rain, which continued until morning. The whole of yesterday was raw and rainy, and attended with all the concomitants of downright bad, if not the very worst weather.—[Courier.]

Georgetown, S. C. March 5.—*Snow.*—It commenced snowing in this place yesterday morning about 8 o'clock A. M. and continued until this morning. The Snow is now lying about 7 or 8 inches deep.

Naval.—The Norfolk Beacon states that the brig Mary arrived in Hampton Roads, left at Rio de Janeiro, 11th January, the United States ship *Natchez*, Schrs. *Enterprise* and *Boxer*, the latter 62 days from Norfolk, had experienced very severe weather, lost spars, &c. was repairing and would sail in 5 or 6 days for the Pacific. The *Erie* was at St. Salvador, and the *Ontario*, Capt Salter at the Falkland Islands—Officers and crews all well.

The steward of the *Enterprise*, who was charged with an attempt to blow up that vessel, was tried by a court martial and acquitted.

Lieutenant Arthur Sinclair, late of the United States ship *Natchez*, and 6 discharged seamen, came passengers in the Mary, and have arrived at Norfolk.

[*From the Mercantile Advertiser.*]

Auction Duties.

At our request, Mr. Williams has furnished us with the following statement of Auction Duties, paid last year, as prepared for his forthcoming Annual Register, for 1835, which we understand will be published early in April.

Amount of Duties on Auction Sales paid by Auctioneers in the city of New York, for the year ending September 30th, 1834:—

1.	David Austen,	$43,723 49
2.	Lindley M. Hoffman,	28,272 68
3.	William C. Haggerty,	27,449 95
4.	Henry L. Patterson,	20,509 18
5.	William Timpson,	15,845 02
6.	Edward G. Thompson,	12,182 69
7.	Richard Lawrence,	7,832 12
8.	Rowland R. Minturn,	6,660 61
9.	Joseph W. Corlies,	6,489 42
10.	Anthony W. Bleecker,	3,615 73
11.	Duncan C. Pell,	2,377 08
12.	Thomas M. Hooker,	3,364 25
13.	William Gerard,	3,221 94
14.	Thomas W. Pearsall,	2,701 15
15.	George M'Kay Morrill,	1,555 33
16.	Samuel Philips,	1,494 80
17.	John J. Bedient,	914 78
18.	William D. M'Carty;	626 56
19.	John Herriman,	496 64
20.	William M'Donnell,	466 63
21.	Aaron Levy,	317 43
22.	James M. Miller,	305 96
23.	Sidney P. Ingraham,	305 90
24.	Lawrence Power,	197 49
25.	William J. Brown,	191 05
26.	Aaron B. Nones,	130 97
27.	Jesse Cady,	86 61
28.	George S. Mann,	84 85
29.	Robert C. Morris,	75 77
30.	Cornelius Agnew,	71 20
31.	Willliam H. Franklin,	58 59
32.	Thomas Bell,	49 30
33.	John Langdon,	49 54
34.	Daniel Sparks,	32 26
35.	John Pearson,	28 37
36.	Solomon Seixas,	27 28
37.	Thomas Asten,	26 23
38.	Albert J. Fontaine,	18 05
39.	Joseph Daymon,	17 72
40.	Samson M. Isaacs,	15 19
41.	Isaac T. Doughty,	12 41
42.	William M'Laughlin.	11 22
43.	James C. Smith,	9 91
44.	Richard Crawford,	3 84
45.	Jacob Van Winkle,	3 64
46.	Gilbert Lewis,	1 83
Total amount paid by Auctioneers in New York city,		$191,923 63
In all other parts of the State,		1,546 51
Total amount of Auction Duties for 1834,		$193,470 19
Total amount of Duties in 1833,		$238,719 45

We understand that the roof of the Livery Stable in Fulton street, Brooklyn, occupied by Mr. Snedeker, fell in on Tuesday from the weight of the snow, and caused great damage to the numerous carriages and sleighs in the building, some of them having been broken to pieces.—The horses also narrowly escaped being killed. Many of the vehicles belonged to private individuals.

We learn that during the violent snow storm yesterday, the engines of the Camden and Amboy Railroad Line, going to, and coming from, Philadelphia, approached each other without being perceived until they came into collision. The guide wheels of the train forNew York, were so much injured, as ent their proceeding, and the passengers a'. 'o wait, until one of the engines employed in clearing the rails of snow, could be got. They then again started, but did not arrive in New York until 1 o'clock this morning, having been further delayed by the w er in the tanks of the engines giving o t, owing to the delays caused by the deep snow on the rails.

THE TWENTY FOURTH CONGRESS.—The following States have elected to the 24th Congress the number of Representatives to which they are respectfully entitled.

Maine	8	Illinois	3
Vermont	5	Delaware	1
Massachusetts	12	S. Carolina	9
New York	40	Georgia	9
New Jersey	6	Louisiana	3
Pennsylvania	28		
Ohio	19		143

Being twenty two more than a quorum. Mr. Wayne of Georgia, has been appointed a Judge of the Supreme Court of the U. States since his election. There are therefore only 142 qualified to take their seats. In the following states the elections will be held as follows:

New Hampshire	4	in March
Rhode Island	2	April
Connecticut	6	April
Indiana	7	August
Missouri	2	August
Maryland	8	October
Virginia	21	April
Kentucky	13	August
N. Carolina	13	August
Alabama	5	August
Mississippi	2	May
Tennessee	13	August
	97	

Commodore DOWNES has been appointed to the command of the Navy Yard at Charlestown, (near Boston, Mass.) to succeed Commodore ELLIOT, appointed to command the Constitution Frigate.

We learn that Surgeon *John S. Wiley*, of the United States Navy, who was dismissed by sentence of a Court Martial, has been restored by the President, with the unanimous concurrence of the Senate, to his former rank in the Navy.

We are assured, and readily believe, that this re-appointment is hailed with universal satisfaction by the Navy.

FROM PORT MAHON.—Mr. C. S. Mead, passenger in the brig Alice, from Cadiz, informs that he left at Port Mahon on the 15th of January, the United States ship Delaware, frigate Potomac, sloop of war John Adams, and schooner Shark. All well on board. The Delaware was expected to sail soon for home. Mr. Mead also states, that an express had just reached Cadiz (30th January) from France. It was reported and generally believed, that the United States and France were on the eve of a war, which caused much excitement.

Baron DE RENNE, Chargé d'Affaires from Prussia, and M. STEEN BILLE, Chargé d'Affaires for Denmark, left their Winter residence in this city yesterday: the former for New York, the latter for Philadelphia.

PRESENTATION OF SWORDS.—Thursday the 20th February, was the time appointed by Governor Thomas, for the delivery of the swords which the Legislature of Maryland directed to be presented to Col. (now General) Towson, of the United States Army, and Captain Gallagher of the United States Navy, as a testimony of the high sense entertained by their native State of their efficient services and gallant conduct during the late war with Great Britain. Those officers reached the city during the forenoon.—At four o'clock in the afternoon, a large number of persons consisting of the members of the Legislature, Executive and Judicial Departments, officers of the Army and Navy, visiters and citizens, assembled in the Senate Chamber.

There the Swords were presented, with suitable addresses by the Governor, and modest and becoming replies by the distinguished officers, who received them.

The Illinois Legislature adjourned on the 13th February, having been 75 days in session. They passed several bills of general importance. The State Bank bill, Canal bill, and the bill for extending the charter of the Shawneetown Bank, have passed. The capital of the State Bank is $1,500,000, and the amount which is authorised to be borrowed for the commencement of the Canal, is $500,000. The subject of *Common Schools* received no definitive action.

SMALL NOTES.—The law prohibiting the making and circulation, in New Jersey, of notes under *five dollars*, which for notes of *one dollar* takes effect on 4th July next, of *two dollars* on 1st January next, and of all others under *five dollars*, on 4th July, 1836, is enforced by a penalty of *five* dollars for each offence, as to any note of a State Bank, and of *fifty* dollars, as to any note of a bank out of the State.

QUEBEC, FEB. 27.—*Privilege of a Colonial Assembly.*—We have just heard that Mr. Speaker Papineau has issued his warrant for taking into the custody of the Sergeant-at-arms, HENRY JESSOP, Esq., Collector of His Majesty's Customs; on the ground of his refusing to obey a resolution calling for certain papers in his department, without either his having received the order of the Governor or that of any competent officer of the empire.

The Philadalphia Gazette of Saturday evening says:—"The river Schuylkill broke up on the night of the 5th inst. The ice is fast disappearing in the Delaware, and from present appearances, the navigation will be entirely open in a few days. The thermometer at 7 o'clock this morning, was at 33, and we have had this morning some hail and rain with wind from the northeast.

We learn from Capt. Robinson, that a line of steam packets has been established, by a company at Havre, to carry freight and passengers between that place and Hamburg, which leaves twice a week; their average passages are 54 hours. These vessels are 450 tons each, with double engines of 130 horse power, and 170 feet in length; they are very swift vessels, built in the strongest manner, of the best materials, and finished in a style of elegance equal to any vessels that float; in fact no expense has been spared by the company to make them very superior vessels. These packets afford a quick, regular and almost direct communication for passengers and freight between New York and Hamburg, both of which are taken at low rates; this intercourse was very much wanted, inasmuch as shippers of German merchandize had frequently to wait months for vessels, or transport the goods by land to Havre, at a heavy expense.

The company intends to have another line to run between Havre, Lisbon, Cadiz and Gibraltar, which will afford a direct communication between the south and the north of Europe.

There are on the stocks at Havre 5 large ships, 2 brigs, and 3 steamboats.—[Merc. Adv.]

UNPARALLELED DESPATCH!—Captain Shinn, of the packet schooner *Portsmouth*, politely handed us last evening the New York papers of the *preceding day, (Tuesday)* having accomplished the whole distance from wharf to wharf in (we believe) *the unprecedented period of twenty-eight* hours. The papers contain no foreign news.—[Norfolk Beacon.]

A physician, named Moniz, took up his residence in Norfolk, Virginia, when driven from Portugal during the political troubles some years ago. The change in affairs in that nation induced the Doctor to return; and he was soon elected a member of the Cortes—where he had scarcely taken his seat, before he offered a resolution to the Chamber of Deputies, expressing the grateful sense with which the conduct of the United States was regarded in relieving the inhabitants of the Cape de Verds.

An Advertisement in the Morning Chronicle offers a reward of three guineas for a *set of gentleman's teeth*, which were lost in an omnibus. Only think of going out to dine, and when the roast and boiled stand in all their glory before you, finding, confound it! that you have not got *your teeth in your pocket!*

Six Acre Factory.—The Behrens of Manchester are erecting a huge power-loom mill at Preston in Lancashire, which will cover six acres of ground. The whole is to be one story high to avoid the inconvenience experienced in loftier buildings, from the machinery in the upper stories. It is to be called the "Six Acre Factory."

An elderly lady at a village in Norfolk, England, has adopted the singular idea that she is an old hen. Her restlessness and vexation were excessive so long as her friends contradicted the notion; but after a time they ceased to do so, and at the recommendation of her medical adviser, suffered her to think and act as she pleased. In consequence of this indulgence the good dame is more positive than ever of her feathered state, and has even gone so far as to make herself a nest in a clothes basket where she sits a great part of the day with most praiseworthy patience on three Dutch cheeses, asserting that they will be hatched in seven weeks time.—[Suffolk Chronicle.]

ANIMAL INSTINCT.—A seaman, belonging to the wood-party of a ship upon the coast of Africa, had straggled with his companions, and was using his axe freely in the woods, when a large lioness approached him, face to face. The man, for the first moments, gave himself up for lost; but very soon afterwards he began to perceive that the manner and expression of countenance of the lioness was mild, and even mournful, and that he had no danger to apprehend from her. She looked at him, and then behind her, and upward into the trees, and went a few steps from him upon the path by which she came; and then returned, and went again, and acted, in short, much as a dog would act that wished you to follow him. The seaman yielded to her obvious desire, and she led him some little distance, till, near the foot of a tall tree, she stopped, and looked up, with plaintive cries, into its branches. The seaman, directed by her eyes and gestures, looked upward also, and soon discovered, at a considerable height, an ape, dandling and playing with a cub lion, which he had carried thither for his amusement. The wants and wishes of the lioness were now easily understood. The lion species, though usually reckoned among the species of cat, differ absolutely from it in this, as in many other particulars, that it cannot ascend a tree; a distinction, by the way, which ought to satisfy us at once of the error of those who talk to us of lions in America, where in reality there is no lion, and where the puma and jaguar, which they call lions, so readily ascend a tree. But equally in vain would it have been for the sailor to climb after the cub; for the ape, at the best, would have enjoyed the frolic of leaping with his plaything from branch to branch, or from tree to tree, as he approached. The only chance, therefore, was to fell the tree before the ape, seated near its top, should have the sagacity to provide against the effect of the strokes of the axe at its bottom. To work, therefore, he went—the lioness, which had seen other trees fallen by the axe of the stranger, standing by, and impatiently waiting the event. The ape kept his seat till the tree fell, and then fell with it; and the lioness, the

moment the robber reached the ground, sprang upon him with the swiftness and sureness of a cat springing upon a mouse, killed him, and then, taking her cub in her mouth, walked contentedly away from the benefactor to whose skill and friendly assistance she had made her sorrowful appeal! "I can so much the more readily," observed Mr. Gubbins, "believe that even wild animals should put faith in the skill and helping disposition of mankind, as I have myself met with a few striking examples of that faith and expectation in domesticated species, to whose observations, however, the human arts and powers must be more familiar. A short time since I was riding over a common, at some distance from my house, when a pig, which, in the course of feeding, had so twisted the triangular yoke upon his neck that the narrow portion of it pinched his throat and threatened him with suffocation—no sooner saw me, than he came as near as to the fore-feet of my horse, foaming at the mouth, and struggling to overcome his difficulty. That he believed in the power of a man to assist him was evident; but he had also his fears of that human power, as possibly more dangerous to his throat than all the pressure of his inverted yoke; so that whenever I alighted from my horse with the design of helping him he ran away, and yet, as soon as I was again seated, he returned, continuing to travel with me, close to the horse's fore-feet, or as near to my own person as he was able, his mouth still foaming, and his efforts to escape suffocation still prolonged. In the end, seeing a farm-house a little upon one side of my road, I pulled my bridle that way, the pig still accompanying me, till, reaching the yard-gate, I called to some of the people and apprised them of the pig's presence and misfortune, as my best means of promoting his relief.—[Burford Cottage, &c.]

LATEST FROM PORTUGAL.—The brig Opulence arrived last night, having sailed from Oporto on the 8th Feb.

Captain St. John brought no papers. We learn from him, that a steamboat arrived the day he left from Lisbon, with Donna Maria and the Duc de Leuchtenburg, her husband; and that there was great rejoicing upon the occasion. The same steamboat brought the heart of Don Pedro in an urn! Captain St. John also informs, that it was reported the day he left, that France had declared war against the United States, which report caused a great deal of excitement.

Our accounts direct from France render the truth of the report impossible, as without any such information, it would be most extremely improbable.

MECHANICS' MAGAZINE, NOS. 1, 2, AND 3 OF VOLUME 5, FOR JANUARY, FEBRUARY, AND MARCH, 1835.

These three numbers of volume 5 are now published and for sale at 35 Wall street, and at the principal bookstores. These numbers contain a great number and variety of articles, both useful and entertaining; and are printed in a style altogether superior to any of the preceding numbers of the work, and no efforts will be spared to render the work equal to any other of the kind published.

Bound or stitched volumes may be had single, or in complete sets, at the office No. 35 Wall street, of

D. K. MINOR.

AGENTS FOR NEW PUBLICATIONS.

HENRY G. WOODHULL, of Wheatland, Monroe county, New York, is agent for the following Publications:

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The Rochester Gem, at $1.50 in advance.

All Communications addressed to me, at Wheatland Monroe county, will be promptly attended to. September 19, 1834. nov6 Cif.

RAILROAD CASTINGS.

MANY & WARD, Proprietors of the Albany Eagle Air Furnace and Machine Shop, will make to order car wheels, chairs and knees, and every other description of castings required for railroads. R-1y feb14

NOTICE TO MANUFACTURERS.

☞ SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure. One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Landingburgh.

August 15, 1833. A29 tf RM&F

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Troy, N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

MILL DAM FOUNDRY FOR SALE,

☞ The Proprietors of the Mill Dam Foundry offer for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for *Locomotive* and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 30, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 120 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Geering, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stack of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 36, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggons, could be made per annum.

For terms, apply to

THOS. J. ECKLEY, Treas'. &c., Boston, or to

ROBERT RALSTON, Jr., Philadelphia.

Boston, Dec. 20, 1834.

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad,

No. 264 Elizabeth street, near Bleecker street, New-York.

☞ RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad now in operation. J25 tf

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RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

95 tons of 1	inch by	½	inch,	*Flat Bars* in lengths o
200 do.	1½	do.	¾	do.	14 to 15 feet, counter sunk
40 do.	1½	do.	¾	do.	holes, ends cut at an angle
900 do.	2	do.	¾	do.	of 45 degrees, with spli-
800 do.	2½	do.	¾	do.	cing plates and nails to

soon expected. suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels

Axles of 2¼, 2⅜, 2⅝, 3, 3⅓, 3¼, and 3½ inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON,

6 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

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SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,

J31 6t corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new. among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,

Mathematical Instrument Maker,

No. 9 Dock st., Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,

JAMES F. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY B. CAMPBELL, Eng. Philad.

m1 1y Germant. and Norrist. Railroad

[From the Journal of Commerce.]

CATCHING SHAD BY STEAM.—When Solomon said, many hundred years ago, "There is nothing new under the sun," he could not have foreseen that a portion of mankind so universally known as the "Yankees" would be continually inventing something "new under the sun," and bring the elements so completely in subjection to their will and pleasure as to change the order as well as the "eternal fitness of things." Man has been told that he should live by the "sweat of his brow;" but the "Yankees" by their ingenuity appear to be seeking out a way, if not to counteract this injunction, at least to make it as easy and pleasant as possible. They have earned a name by their enterprize, their daring, and their ingenuity, which, although some envious minded individuals may affect to cast odium upon it, has given them a character of which these same individuals are proud, and which is blended with that of the nation so strongly as to leaven the whole.

Among all the inventions that have ever been patented, the one I am about to mention not only caps the climax, but certainly is the last any one would have thought of projecting and putting in operation—IT IS CATCHING SHAD BY STEAM.

In the absence of a *drawing* and technical terms, I will endeavor to explain it as well as I am able, though I presume a more accurate description will be given when it is in operation, which will be very soon, in North Carolina—where catching shad is a very extensive business, employing for three or four months a great many negroes, &c. at considerable expense, as their nets are a mile in length. A steam engine (*a*) of small power is placed near the water's edge, with a concave wheel (*b*) attached to the shaft. Abreas of the engine, and at a suitable distance from the shore (*k*) for dropping the nets into the water, is a buoy (*c*) anchored, with two blocks fastened to it; at a distance to the right and left of the centre buoy are two more (*d* and *e*) with one block each. On the right and left of the engine are five more (*f* and *g*), making ten, with blocks also. From the concave wheel, two ropes (*h i*) run parallel with each other to the centre buoy, through the blocks, one passing to the buoy on the right, the other to the buoy on the left, from thence to the shore, and running through the blocks there, to the concave wheel connected with the engine. It will be seen that when the engine is put in motion, the ropes are in motion also. Two boats, having the net equally divided between them, are fastened to the ropes running parallel with each other, and are carried out by them to the centre buoy, then to the right and left, and of course, as they separate, the net runs off from the boats into the water until they reach the other buoys. All that is necessary for the men in the boats to do next, is to take the ropes attached to the net for hauling it in to the shore, which is done by having the rope as it runs ashore take the boat with it in the same manner as they were carried out. When this is done, the rope running through the blocks on shore is cast from them, (being made so that it can be done,) and the ropes for hauling in the net take its place, and being attached to the engine, the shad are rapidly wending their way to the shore. The time occupied in taking out the net to the buoys, when placed in the boats and hauling it again to the shore, must be much less than it has been by physical strength heretofore. The plan certainly appears feasible; and if so, a great revolution will take place in this business. So great, that some other "Yankee" must *invent* some new method of separating the bones from the meat, so that it can be consumed as rapidly as the market is supplied; for I understand that the patentee calculates that the net will make its voyage in twenty minutes from the time it is put in motion on board the boats. So confident are those interested, (the patentee lives in this city,) that it will be fully tested next spring. K. N.

Hartford, Ct., Jan. 17, 1835.

MECHANICAL POWERS.—From a late foreign periodical we have gleaned the following interesting items, by which it will be seen that steam is not the only, and perhaps not the most economical power, that may be used for mechanical purposes. Much yet remains to be discovered in the arena of nature.

New Moving Power.—At a meeting of the French Academy of Sciences, on the 16th of June, a very interesting communication was read from M. Thilorier, a skilful chemist, who exhibited to the Academy the apparatus by which he procured a litre (a quart) of liquid carbonic acid in a few seconds. The properties of this substance, he observed, have been but little examined, chiefly because it requires to be confined in close vessels, hermetically sealed, and capable of resisting a great pressure. It surpasses all known bodies in the expansion and contraction which it undergoes from given variations of temperature; from 32 to 86° Fahrenheit, a column of the liquified gas is elongated one half. With the same change of temperature a similar column of air is only elongated one-eighth. This enormous dilation, M. Thilorier thinks, will, in future, afford the elements of a moving power infinitely more effective, as well as economical, than that which is derived from the expansion of vapor.

New Mechanical Power.—An ingenious mechanic at Brussels has just applied a new power to mechanics, from which great results appear to be expected. This new power is galvanism. Across a fly-wheel, which is to give motion to the machine, he has placed a metallic bar, previously magnetised by a galvanic pile, and within the attraction of two very powerful magnets. The moment that the bar arrives in a rotary course at the limit of the attractive power, and when it would necessarily stand still, the inventor, by the application of galvanism, suddenly converts the attractive into a repulsive power, which continues the motion in the same direction, and by these alterations, well managed, the whole acquires a rapid rotation. The experiment is said to have been completely successful, and the machine worked a whole hour.

HOOKS AND EYES.—A young man in Boston, who recently returned from a whaling voyage, has constructed an uncommonly ingenious machine, in School street, for manufacturing hooks and eyes. It possesses advantages over any heretofore constructed, from this circumstance, that by altering a few screws, hooks or eyes may be made of different sizes. Those ordinarily in use can make but one size. After viewing this beautiful contrivance, which seems to possess consciousness, from the manner of its handling a skein of brass wire, we were at a loss which to admire most, the complicated apparatus effecting such surprizing labor, or the man who must have contrived the whole, and witnessed its unerring operations in an ideal form, before a single portion of it ever assumed a tangible shape.—[Scientific Tracts.]

PATENT HAMMERED SHIP, BOAT, AND RAILROAD SPIKES.

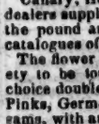
☞ Railroad Spikes of every description required, made at the Albany Spike Factory.

Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use.

Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.13-1y

SUPERIOR GARDEN AND AGRICULTURAL SEEDS.



The Subscriber has now on hand a full supply of Garden and Field Seeds, growth of 1834; among which are all the finest cabbages, cauliflower, brocolie, radishes, peas, &c., that are cultivated in England, France, and Holland, together with every sort that can be raised to advantage in our own country, and which are grown expressly for my use from stock furnished and raised by the most experienced gardeners in this country; in short, every article emanating from my store I warrant genuine and fresh.

Also, skinless oats, potatoe oats, 44 lb. weight to the bushel, perennial rye grass, white clover, lucerne or French clover, orchard grass, Herd's grass, white mulberry, and yellow locust seeds, spring tares or vetches, genuine mangel wurtzel, and ruta baga, and field turnip, seeds well worth the attention of farmers.

Canary, Hemp, Rape and other bird seeds; wholesale dealers supplied on accommodating terms. Price lists by the pound and bushel furnished on application, as also catalogues of whole collection.

The flower seed department embraces the choicest variety to be found in this country, in which are included choice double double Dahlia seed, carnation and choice Pinks, German and China Asters, splendid double balsams, with an addition of several new varieties, accompanied with a printed direction for culture and management.

Orders will be punctually attended to and carefully packed and forwarded as directed, but as the collection of distant debts are often troublesome and sometimes impracticable, it is desired that satisfactory reference be made to persons in Albany, when the order is not accompanied with the money. W. THORBURN.

347 N. Market st. (opposite Post Office.)

*** Mr. Thorburn is also Agent, and will at all times receive subscriptions, for the NEW YORK FARMER and American Gardener's Magazine; QUARTERLY JOURNAL of Agriculture, Mechanics, and Manufactures; MECHANICS' MAGAZINE and Register of Inventions and Improvements; and the AMERICAN RAILROAD JOURNAL and Advocate of Internal Improvements; published at No. 35 Wall street, N. Y., by D. K. MINOR. P—feb1 tf